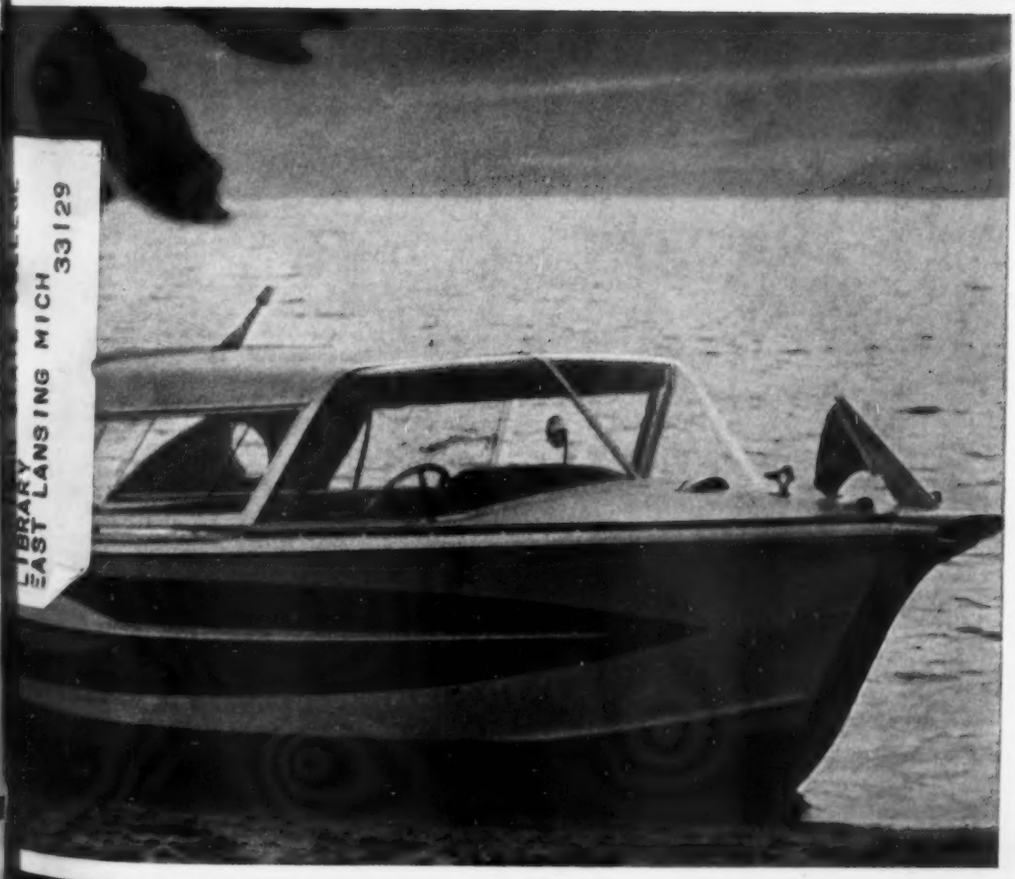
# WOOD WORKING

MARCH, 1959



LIBRARY
EAST LANSING MICH
33129

In This Issue

Wood Is *Naturally* Best For Boats

How Timblend Is Made

FLEXIBILITY . . . Key To Success For Atlanta Boat Co.

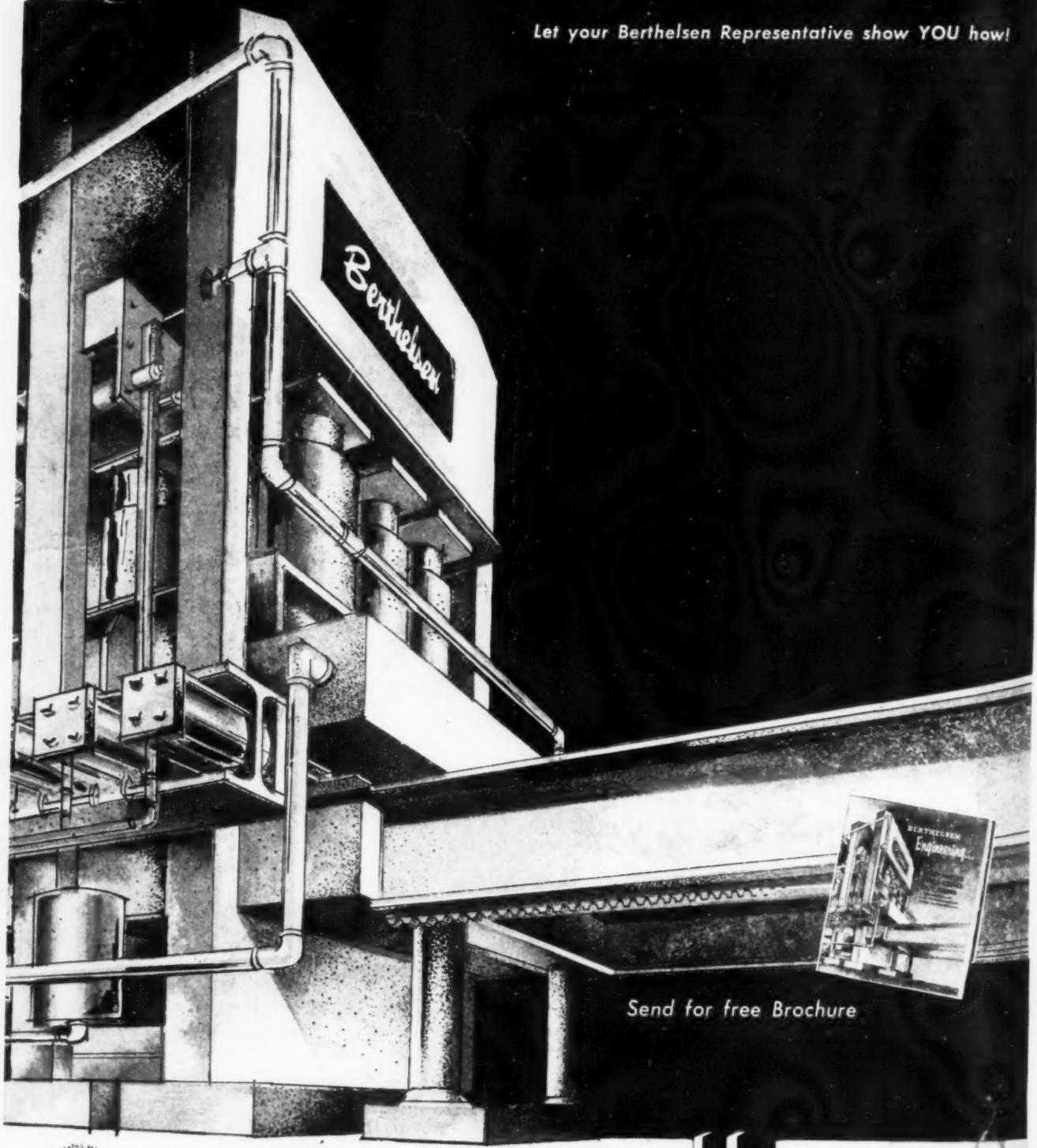
Wooden Legs Are Their Business

Finger Jointing For Profit

E NUMBER ONE PUBLICATION FOR THE ENTIRE WOODWORKING INDUSTRY

# BERTHELSEN PRESS

*Let your Berthelsen Representative show YOU how!*

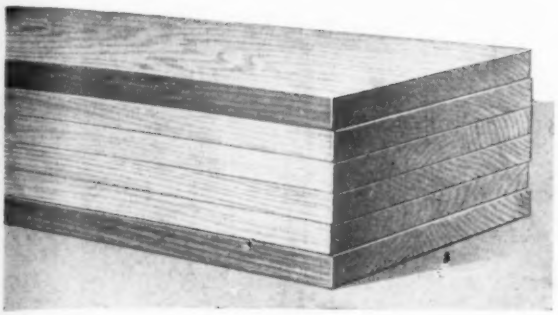



*Send for free Brochure*

## BERTHELSEN PRESSES

P. O. BOX 1423
LOCKPORT ROAD
JOLIET, ILLINOIS

# In one quick pass...

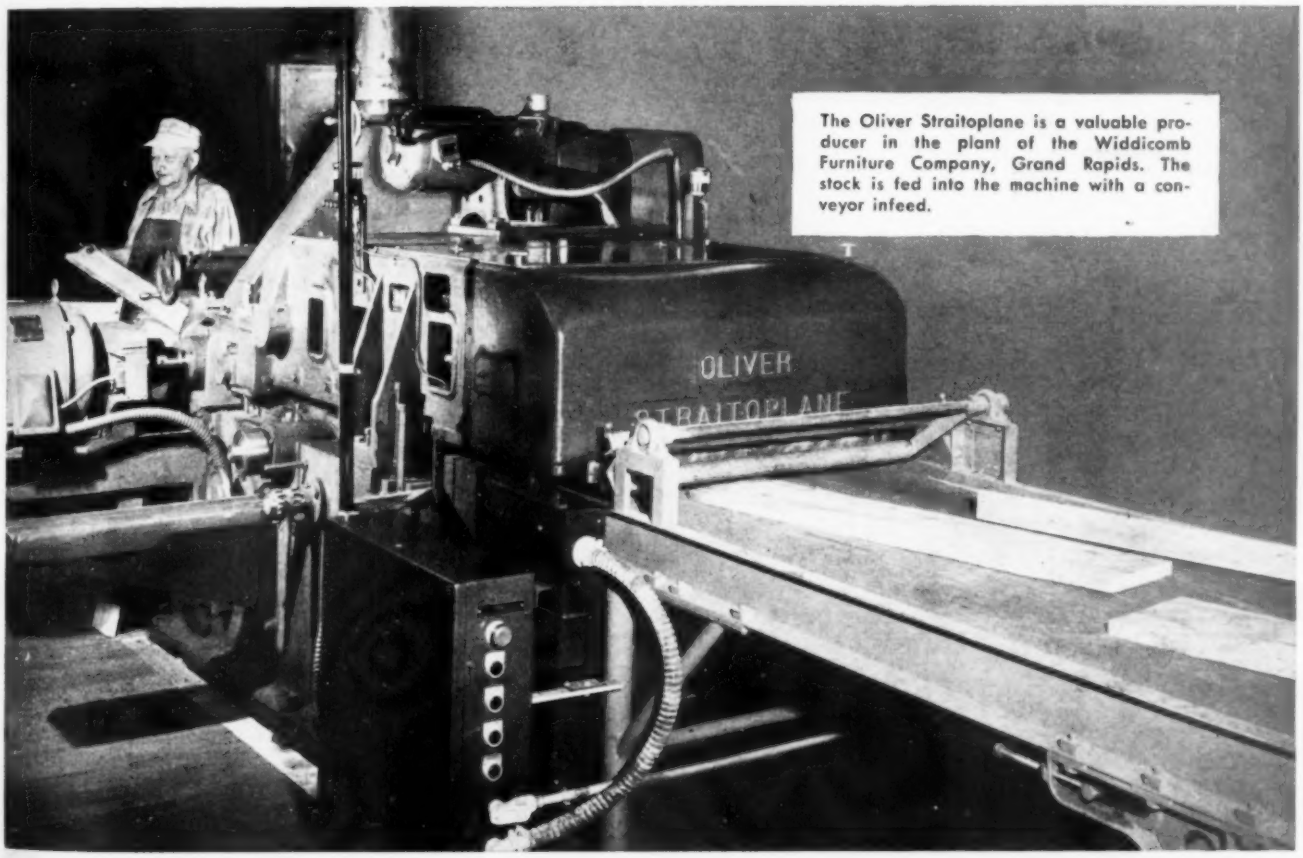


## the Oliver Straitoplane takes twisted stock out-of-wind ...planes both sides smooth and parallel!

The efficiency of the Straitoplane is proved every day on the floors of users. It does the work of a single surfacer and a facing planer in one pass, and does it better! Planes out as much as ¼" on each side at speeds up to 90' a minute. The bottom side is face jointed, and the top side planed smooth to the desired dimension. The finished stock is perfectly flat, and uniformly true.

The Oliver Straitoplane is the indispensable unit of the Oliver Conveyorized Rough Mill layout now being used by many of the country's leading woodworking plants.

The Straitoplane takes twisted stock of any length from 1½" to 36" wide, and from ½" to 6" thick. It planes stock as short as 16" when fed singly. Many narrow strips can be handled at one time. No other machine can match the efficient production of the Oliver Straitoplane!




The Oliver Straitoplane is a valuable producer in the plant of the Widdicomb Furniture Company, Grand Rapids. The stock is fed into the machine with a conveyor infeed.

*Write for full details on the cost-cutting Oliver Straitoplane for production plants . . . and the Oliver Conveyorized Rough Mill layout*

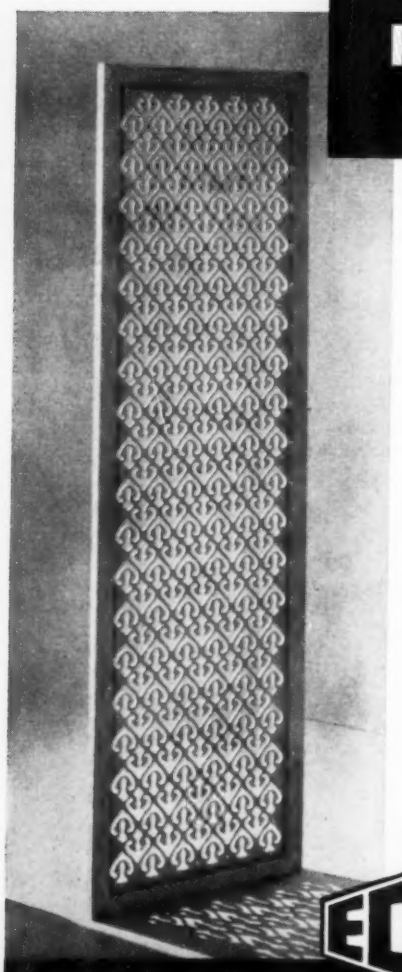
OLIVER
SINCE 1890

**OLIVER MACHINERY COMPANY**
**Grand Rapids 2, Michigan**

# Unexcelled Performance with

## EKSTROM CARLSON Routers

**No. 434**
**OTHER MODELS AVAILABLE**



Bigelow 3-7110-1

**General Wood & Display Products Co., Inc.**
*Manufacturers of Fine Wood Products*
442 FRELINGHUYSEN AVENUE, NEWARK 5, NEW JERSEY

November 12, 1958.

Ekstrom, Carlson & Co.,
1400 Railroad Avenue,
Rockford, Illinois.

Gentlemen:

Several months ago we purchased an Ekstrom Carlson No. 434 Sliding Spindle Router through your representative, American Woodworking Machinery Company, Hackettstown, New Jersey. We are so enthusiastic about this machine and pleased with its fine performance, that we feel we would be remiss in not telling you about it.

This Router has been in continuous use ever since we made the purchase, to do very exacting routing operations as pictured in the attached photograph. The quality of the work turned out by this machine is excellent.

We have also found the Ekstrom Carlson router to be very responsive in its adjustment and controls, to the will of the operator. As our demand for exacting routing work continues, it will not be too long before we will need another machine of this type and be assured it will be an Ekstrom Carlson.

We heartily recommend the purchase of this unit by any plant where routing operations are part of production.

Yours very truly,

GENERAL WOOD AND DISPLAY PRODUCTS CO., INC.

A. J. THEORET, President.

ECCO

*Write for Bulletins*

**EKSTROM, CARLSON & CO.**
1401 RAILROAD AVENUE • ROCKFORD, ILLINOIS

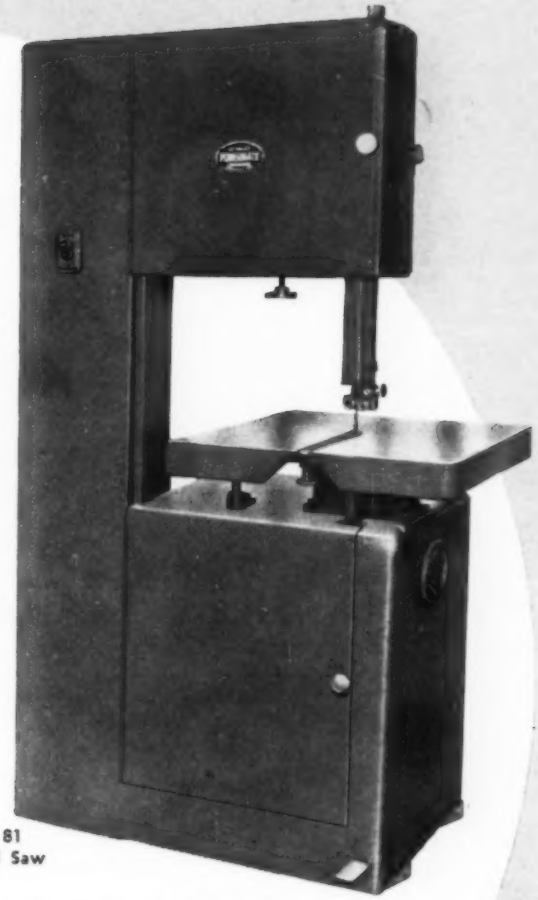
# HOW POWERMATIC ASSURES PRECISION AND DEPENDABILITY

Guide bar counter-balanced for quick, safe adjustment

Maximum rigidity—precision machined table has 3" flange

Extra-heavy, single-action trunnion for accurate table stability

- BUILT OF HEAVY-GAUGE STEEL PLATE
- ALL MOVING PARTS COMPLETELY GUARDED
- HAND-WHEEL SECURELY LOCKS TABLE TRUNNION



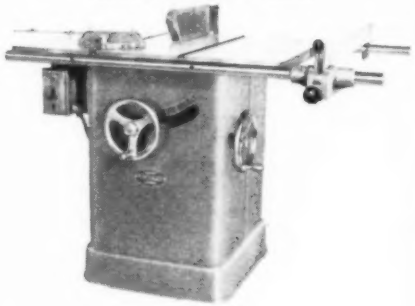
Model 81
20" Band Saw

You've never seen such flexibility and accuracy before! Powermatic engineers spent years in testing and developing this remarkable unit. The result? A band saw as precise and accurate as a fine watch!

Band wheels easily accessible through convenient hinged door . . . sealed dust chute keeps motor and pulley free of dust . . . table has removable insert, tilts 45° right, 15° left . . . friction-free ball bearing guide adjusts for any type blade.

Super performance . . . in high production or simplest shop fabrication!

## POPULAR MODEL 70 12" TILTING ARBOR SAW



Smooth machined, rib-reinforced table has 30 x 40" working surface with standard extensions. T-slot for extra cut-off capacity. Extra large trunnions for maximum rigidity and accuracy. 1 to 3 HP, single or 3-phase motor, or 5 HP, 3-phase. Anti-kickback pawls for safe operation.

**MAIL COUPON TODAY FOR FULL DETAILS**

# POWERMATIC

**MACHINE COMPANY**

**McMinnville, Tennessee**

***DEALERS IN PRINCIPAL CITIES***

POWERMATIC MACHINE COMPANY McMinnville, Tennessee
Dept. WW

Please rush me full details on the Powermatic

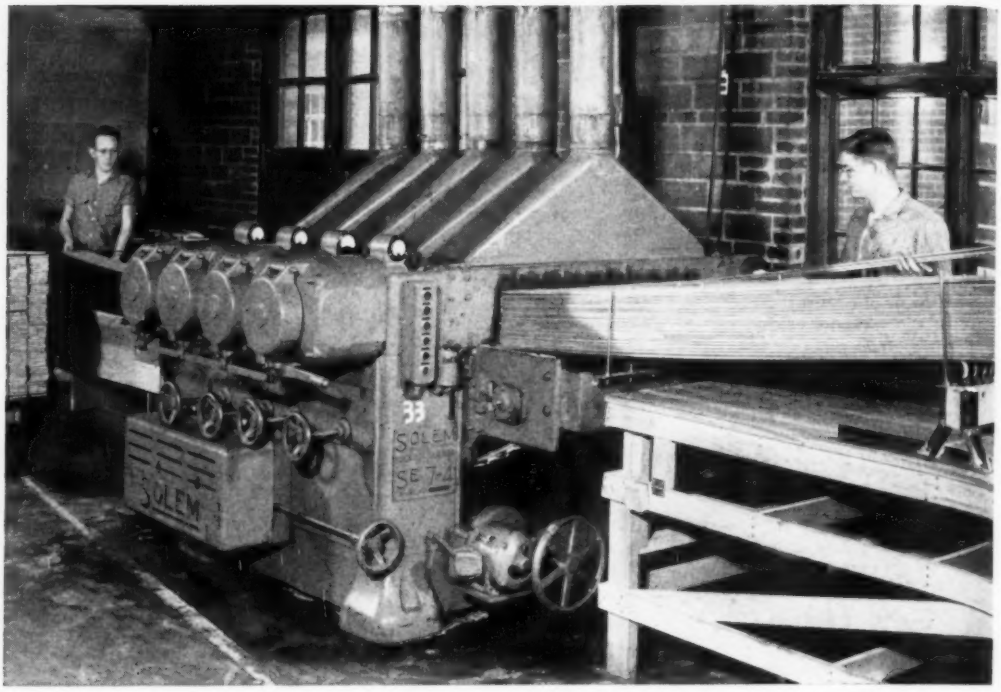
☐ 12, 16, 20 & 24" PLANERS ☐ DRILL PRESSES ☐ JOINTERS
☐ CHAIN & HOLLOW-CHISEL MORTISERS ☐ TENONERS
☐ ARBOR & BAND SAWS

Name .....

Address .....

City & State .....

# SOLEM ENDLESS-BED SANDERS
## ADAPTABLE TO AUTOMATIC FEEDING



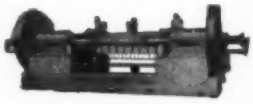

SOLEM four-drum endless-bed sander working in the plant of Rolscreen Company, Pella, Iowa, where ingenious method is employed for automatic feeding of thin flat stock.

# TAKING ADVANTAGE OF LABOR SAVERS...

The picture above illustrates how labor-saving, automatic adapters can often be built around the hand-fed machines you now have in your plant, lightening the work and increasing production at the same time. This not only keeps the employees happy, but earns more money for you.

### YOU MUST START WITH A PRODUCTION MACHINE...

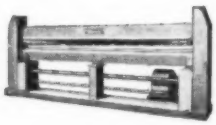
In order to take advantage of ingenious adaptations, you must start with a good machine—such as a Solem. For years the Solem Endless-Bed Drum Sanders have proved themselves reliable. They can be operated twenty-four hours a day, year in and year out, if necessary, with minimum adjustment or repairs—because the quality is built in.



Veneer Lathes

### IT'S NOT BY ACCIDENT...

It's not by accident that Solem's are so dependable—it's intended that way. Dynamically balanced drums; Madison-Kipp automatic lubricator; more thorough dust removal—are just a few of the quality features built into these high production machines. When the time comes to make them automatic—you are starting with a machine that can take it.



Veneer Clippers

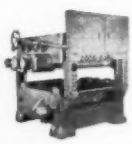
### WHETHER OR NOT YOU GO AUTOMATIC...

It will pay you to look into the Solem Sanders and the other Merritt-Solem machines pictured on this page.

***Write Today For More Information!***

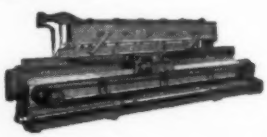
**SOLEM'S NEW PLANT IN ROCKFORD**

Solem's new modern plant in Rockford, Illinois is conceived and planned with the idea of bringing Solem Machine Company and the Merritt-Solem Division together under one roof as soon as possible, to more closely integrate and expedite the entire operation. This large modern plant will make it possible for us to pass still greater benefits along to our customers and provide them with even better service.



Roll Feed Double-Deck Drum Sanders

Veneer Jointers



Hot Plate Presses

# SOLEM MACHINE COMPANY
ROCKFORD ILLINOIS

E. McDANIEL
Editor

DARRELL WARD
Engineering Editor

PAUL H. GRAHAM
Contributing Editor

R. MILLER
Editorial Assistant

D. B. EDMONSON
Reader's Service

ROBERT CARLSON
Production Assistant

Finger-jointing core stock has proved profitable for this Wisconsin plant. Complete story appears on page 53.

MARCH '59

# hitchcock's WOOD WORKING

Vol. 61

No. 3

Business Staff

R. C. VAN KAMPEN
President

V. C. HOGREN
Executive vice-president

W. F. SCHLEICHER
Vice-president and
Editorial Director

HENRY J. SMITH
DAN E. REARDON
Vice-presidents

OLIVER S. PEPPER
Business Manager

JOHN S. TODD
Production Director

D. L. CAMPBELL
Advertising Production Manager

L. M. SCHROEDER
Art Director

R. L. SPRECKELS
Circulation Manager

BRUCE B. HOWAT
Director of Marketing

RAY SIETSEMA
Director of Research

For District Managers
See Card Insert.

SUBSCRIPTION RATES:

DOMESTIC
1 Year (12 issues) ..... $4.00
2 Years (24 issues) ..... 7.00

CANADIAN & FOREIGN
1 Year (12 issues) ..... $5.00
2 Years (24 issues) ..... 10.00

Copyright 1959, by Hitchcock Publishing Co., Wheaton, Ill. Phone Montrose 5-1000, Cable Address HITCHPUB.

Accepted as Controlled Circulation Publications at Pontiac, Illinois

BPA

Letters to the Editor ..... 10
Editor's Page ..... 12
Memo to Management ..... 14
Pointed Paragraphs ..... 16
How Timblend Is Made ..... 22
Wood Is *Naturally* Best for Boats ..... 32
Wooden Legs . . . A Specialty ..... 47
Cover Story: Century Boats ..... 63
Cutterheads Must Run Smoothly ..... 87

PLYWOOD SECTION ..... 51
Finger-Jointing For Profit ..... 53

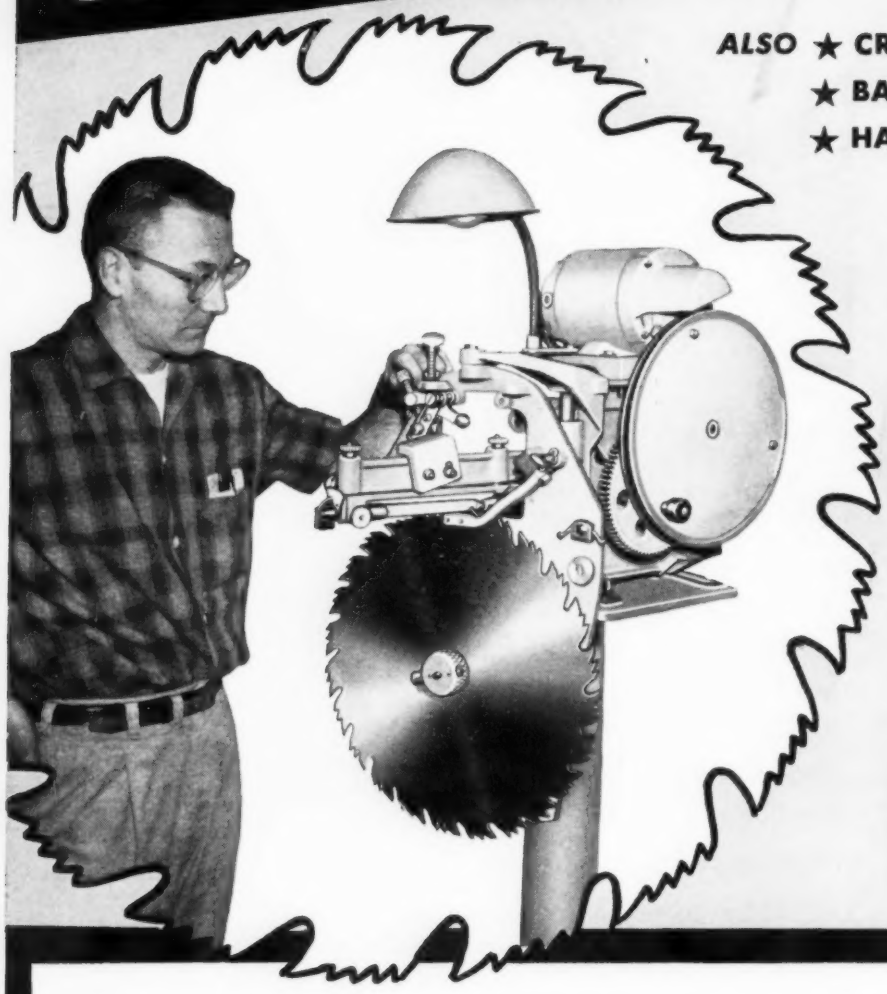
FINISHING SECTION ..... 65
FLEXIBILITY . . . For Successful Finishing ..... 67

Around the Shop ..... 39
Right or Wrong ..... 81
Equipment and Supplies ..... 91
Industry Notes ..... 100
Available Literature ..... 104
Indexes ..... See Opposite Page 112

*Here's the FIRST and ONLY Machine that Automatically Files and Joints*

# COMBINATION RIP AND CROSSCUT SAWS

ALSO ★ CROSSCUT CIRCULAR SAWS
★ BAND SAWS
★ HAND SAWS



It's the new Model 200

# FOLEY *Automatic* SAW FILER

THE NEW model 200 Foley Automatic Saw Filer is the *first* and *only* machine which will file the so-called "combination" (rip and crosscut) circular saws; also crosscut circular saws, band saws, all types of hand saws.

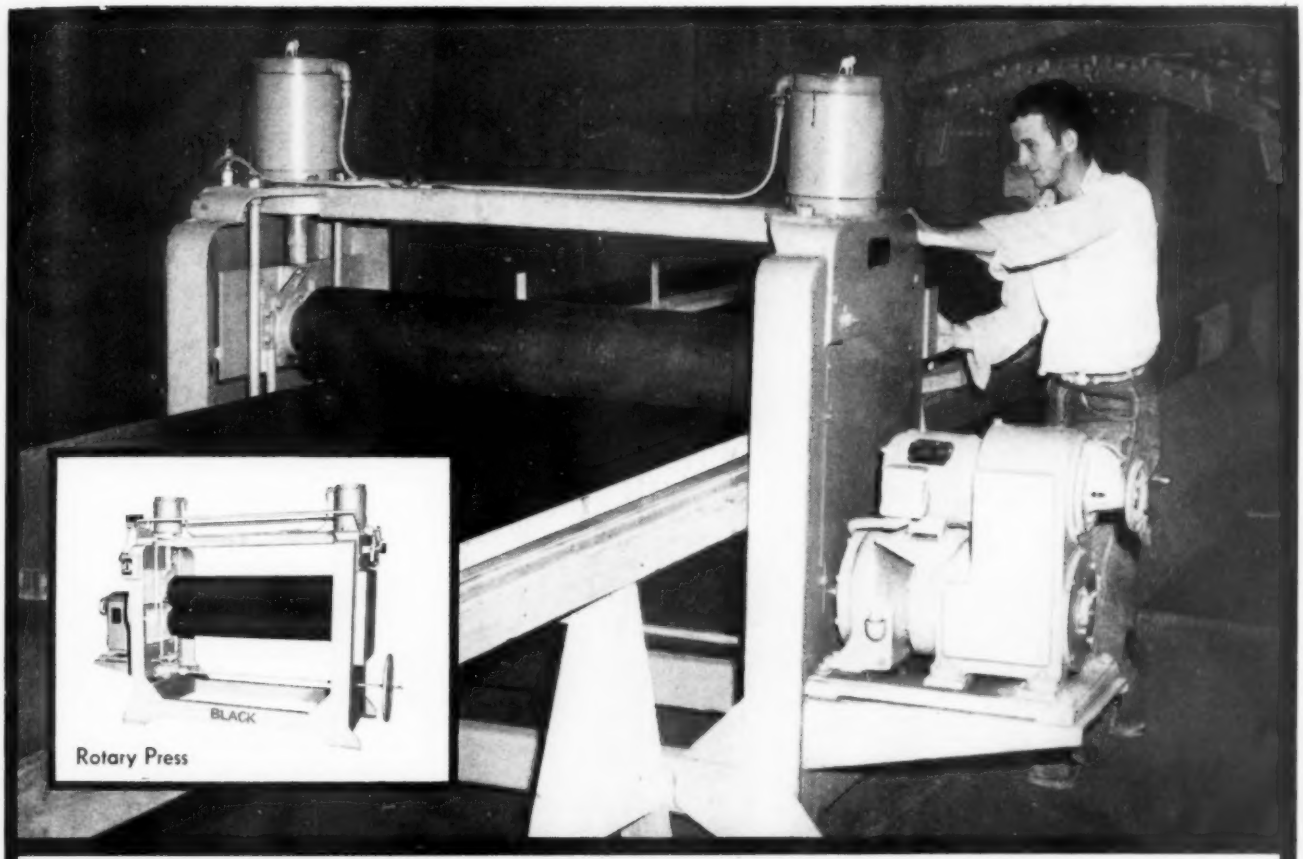
After years of research and testing, Foley has "jumped the gullet" in filing combination saws with a simple yet ingenious feed mechanism which feeds *an entire segment* at a time. Thus, the first tooth in each segment of a combination saw is sharpened clear around the saw; then the second tooth in each segment, and so on, until the saw is finished. The feed mechanism is also easily adjusted to feed from tooth to tooth for all other saws, as fine as 16 points per inch.

The exclusive Foley principle of jointing the saw as it is filed, keeps all teeth uniform in size, shape and spacing; it also keeps circular saws perfectly round. This assures a fast, smooth, true cutting saw that stays sharp longer, runs cooler, and frequently doubles the life of the saw.

## 30-DAY TRIAL OFFER

You may try the new Model 200 Foley Saw Filer in your own shop for 30 days. See for yourself its precision work, advanced design and quality construction—time-proved through more than 50 years, manufacture and use of previous models. Write for literature and details of 30-day trial offer.

**FOLEY MANUFACTURING COMPANY**
3351 N. E. 5th St., Minneapolis 18, Minn.




# BLACK BROTHERS COLD PRESSES, For Fast Efficient Moderate Pressure Laminating

Here's the *economical way* to meet the challenge of new adhesives and hold the line on ever-increasing manufacturing costs. Black Brothers' cold presses are especially designed to make efficient use of both manpower and floor space. They're fast, accurate, versatile — incorporate the most up-to-the-minute features for speeding work through modern laminating processes. Specific product bulletins will give you complete details. *Write for them today.*

**ROTARY PRESS** (Above) Here is automation in lamination . . . the ideal press for laminating dissimilar plies when bonding with rubber base contact cements and adhesives. Increased pressure efficiency and faster production are two prime advantages of this press which is available in capacities to 122". Pressure can be furnished by either pneumatic cylinders or large adjustable pressure springs. *Bulletin 11-C*

## THE BLACK BROTHERS CO., INC. — MENDOTA 6, ILLINOIS

**AIR HOSE LAMINATING PRESS**

Low cost, high production press especially popular for laminating operations requiring moderate pressure with the fast-setting "no clamp" vinyl and protein latex type glues. Sizes from 30" x 30" to 62" x 120" platens. Bulletin 11-D

**MOTORIZED LAMINATING PRESS**

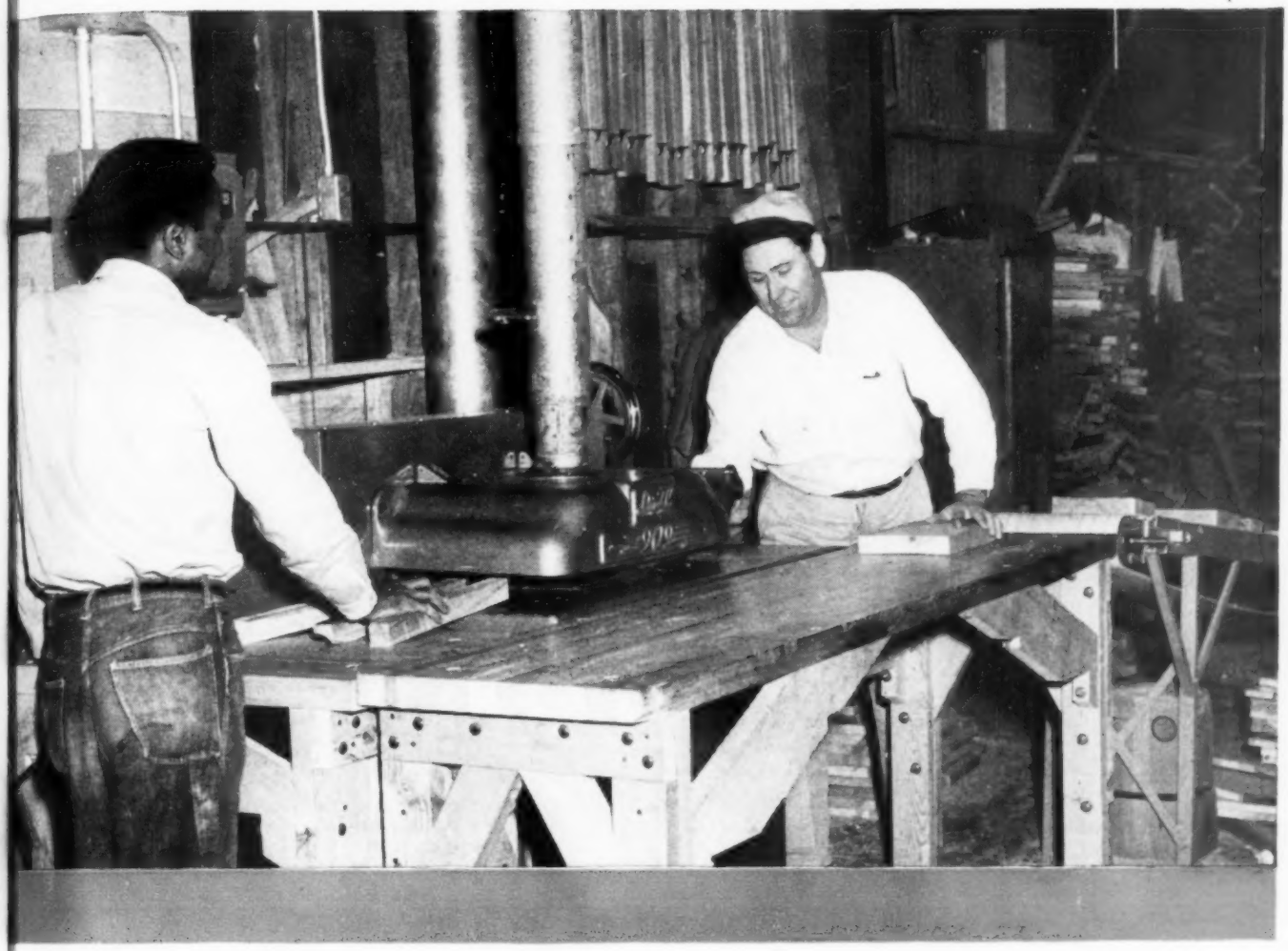
A fast, efficient press for laminating jobs requiring moderate pressure. It can be used either with or without retaining clamps and I-beams. Low initial cost, rugged construction make it a smart investment for years of dependable service. Sizes from 36" x 36" to 58" x 200". Bulletin 11-E

# DIEHL MEANS BUSINESS

## ...for DAVIS CO.

### Memphis, Tenn.

Davis is famous for quality dining room furniture at moderate cost. One of its all-time best sellers is the captain's chair shown here. Much of the company's success can be attributed to efficient use of modern production-line methods. Diehl machinery is an important factor in keeping volume up and production costs down.



## Diehl No. 909 Multi-Rip Saw . . .

# "Cuts so fast we can't keep it busy,"

*reports Fred Bayes, Davis Plant Superintendent*

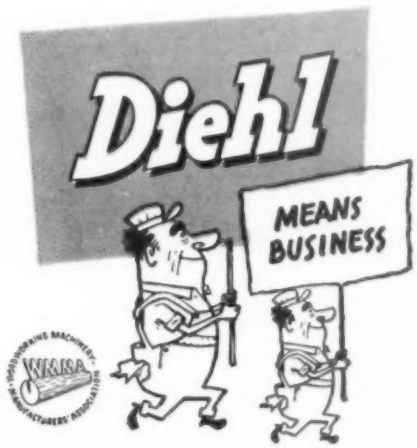
The Davis Company of Memphis wanted to increase output of legs and spindles for its line of dining tables and chairs. This speed-up job was assigned to a new Diehl No. 909 Multi-Rip Saw, which replaced a straight-line ripsaw in the Davis production line last July.

Davis uses the No. 909 for gang-ripping of No. 1 and No. 2 stock prior to profiling and finishing. It is also used to rip for width on built-up gum legs, where it eliminates a step in the squaring process.

"This Diehl machine is even more efficient than we realized," says Plant Superintendent Fred Bayes. "We can't get stock from our cut-off saw to the 909 fast enough to keep it running anywhere near capacity."

For precision, high-speed gang ripping of stock from ⅛" to 2½" thick, you can't make a better choice than the Diehl No. 909. It's low in cost, high in traditional Diehl quality. Five powered feed rolls assure positive feed on stock down to 5" long. Standard speed range is from 50 to 115 fpm. Other features: easily adjustable table; enclosed roll drive assembly; frame-mounted arbor and arbor motor; easy-to-remove saw and spur sleeves; quick-adjust stock gauge; enclosed dust pit.

For complete information write for Bulletin MRS-909, or see your Exclusive Diehl Representative.




**THE G. M. DIEHL MACHINE WORKS, INC., Wabash, Indiana**

*For 50 Years—Standard of Comparison in the Woodworking Industry*

# LETTERS TO THE EDITOR

*Please send tearsheets.*

"We would greatly appreciate receiving three tearsheets of the article, 'Particle Board for the General Market,' appearing in your January, 1959 issue."

—G. J., ALABAMA

"In your November, 1958 issue there is a table on 'How To Select an Adhesive.' If it is at all possible, please send me six copies of this article."

—R. M., ILLINOIS

"I am writing in regard to the January issue and the article 'What Will A Curtain Cover?' Could you send me two or three copies? I operate a Steinemann curtain coating machine and would like to have an extra copy or two of this article."

—J. N., MICHIGAN

"We would like to have one copy of the article, 'How To Profitably Reclaim Particle Board Offal,' by David Raccosin."

—G. D., PENNSYLVANIA

"We are interested in obtaining the following article for our safety library, 'Safety Check List,' October, 1958. In case you cannot send us tearsheets, please forward our request to the author."

—R. P., WASHINGTON

"Please send me the 'Safety Check List,' by Jack Bedford."

—R. S., MINNESOTA

*Information, Please.*

"Could you please refer us to the best technical books for articles on the operation of molders, including molder knife preparation, setting, etc.?"

—D. F., ARKANSAS

"As part of a research study on mortisers, I need the addresses of companies manufacturing oscillating mortisers. Please send me this information."

—L. T., ILLINOIS

"Can you give me further information on the 'Right or Wrong' report concerning senior employees and overtime? We have had similar cases in our plant."

—R. G., OREGON

"We are in need of some rubber feed rollers for a sander that was made by the Duplex Molding Sander Company of Hornell, N.Y. This machine is quite old and the company has gone out of business. Where can we find rollers for this machine?"

—J. S., SOUTH DAKOTA

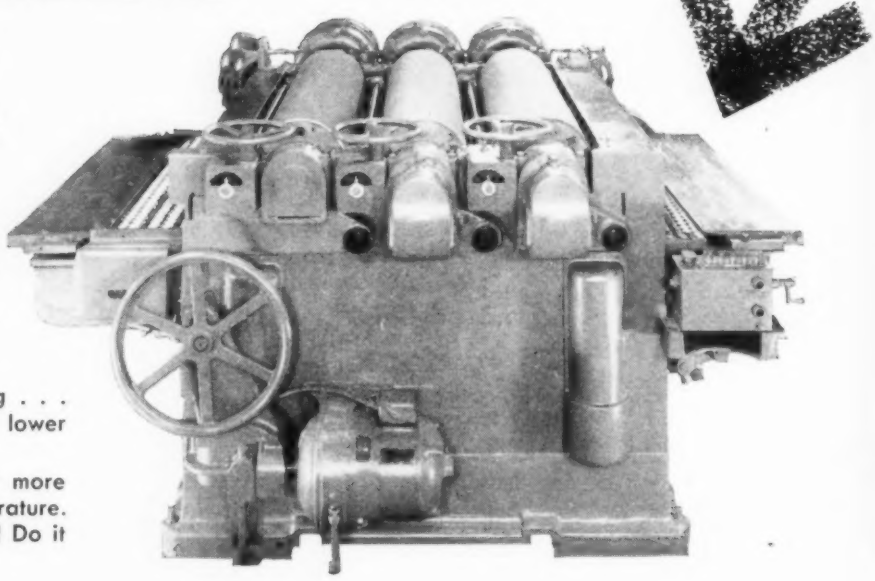

**The Sander that Only a Specialist Could Build**

**EXCLUSIVE FEATURES on Smith 2, 3 and 4 Drum Endless Bed Sanders include:**

- Self oscillating drum mechanism.
- Simple, positive BED adjustments.
- Simple, positive DRUM adjustments.
- Handy location of all hand wheels.
- Sanding thickness to close tolerances.
- Totally Enclosed Motors.

RESULTS: High quality sanding . . . Efficient Production . . . and lower costs

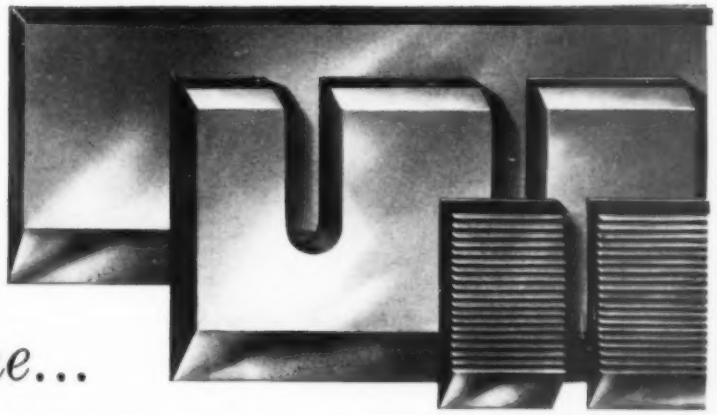
Write, telephone or wire for more information and helpful literature. Also ask about our lease plan! Do it today!



WOODWORKING MACHINERY MANUFACTURERS' ASSOCIATION WMMA

**H. B. SMITH MACHINE CO.**

*More and more... all the time...*

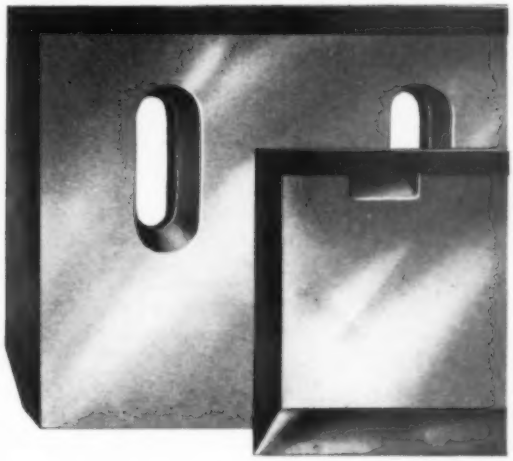


# EFFICIENCY

*is the word...and*

# SIMONDS KNIVES

*help you get it!*

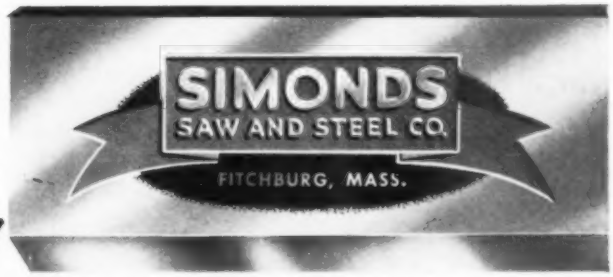


**Smoother Surfaces:** That's what you want and that's what you get with Simonds Machine Knives that cut fast and free . . . with hours more of top-grade work between sharpenings.

When you cut with Simonds Knives — planer, hog, chipper, veneer (or shaper steel) — you KNOW you are using the finest quality tools made for the job. Steel is a special Simonds alloy . . . rolled, forged, and accurately ground for dimension and balance. The pay-off is knives that hold their edges under heaviest work loads without cracking or breaking out.

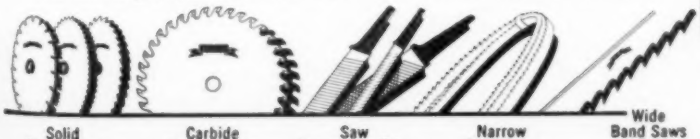
So when you think of knives, "say Simonds" to your dealer . . . *and get the edge on competition.*

**For Fast Service from Complete Stocks**
Call your
**SIMONDS Industrial Supply DISTRIBUTOR**




*Factory Branches in Boston, Chicago, Shreveport, La., San Francisco and Portland, Oregon*
*Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill, Lockport, N. Y., Heller Tool Co., Newcomerstown, Ohio*
*Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada*

*Other High-Quality SIMONDS Woodworking Products:*



Solid Tooth Saws | Carbide Tipped Saws | Saw Sharpening Files | Narrow Band Saws | Wide Band Saws and Resaws

hitchcock's
WOOD WORKING

## The Editor's Page

# Who If Not You? When If Not Now?

The February 16th issue of LIFE carried the first message published by the National Wood Promotion Program. In four beautiful color pages, readers could see for themselves that "For livability unlimited . . . there's nothing in the world like wood."

Unfortunately, some manufacturers of wood products may now be ready to sit back and say, "Well, we've done it." But we haven't done it! We've only fired the first gun and many more need to be loaded and fired. The advertisement in LIFE is a splendid introduction to wood's versatility. Now we need to publicize more tangible, down-to-earth proof about why wood is wonderful. Facts and figures, if you please.

Some of our readers have written to us showing concern about promotional efforts that lacked follow-through. The National Wood Promotion Program will bring results if manufacturers of wood products will shoulder their share of the responsibility.

Basic action must accompany this large scale campaign. Here are four specific suggestions for such action.

- *Consumer market research.* What consumer market research is being carried on by the woodworking industry? Though we have asked a number of people over a period of months, we have little to report on a questionnaire type of research program where consumers are asked to express likes or dislikes.

- *A sustained and systematic approach to the entire wood manufacturing operation.* We are making some headway with trained personnel, improved methods and machinery replacement. But we cannot begin to compare ourselves with the chemical, metal or electronic industries.

- *A better working relationship between manufacturer and dealer.* Who sells your product and how? A study in this area would surprise many manufacturers.

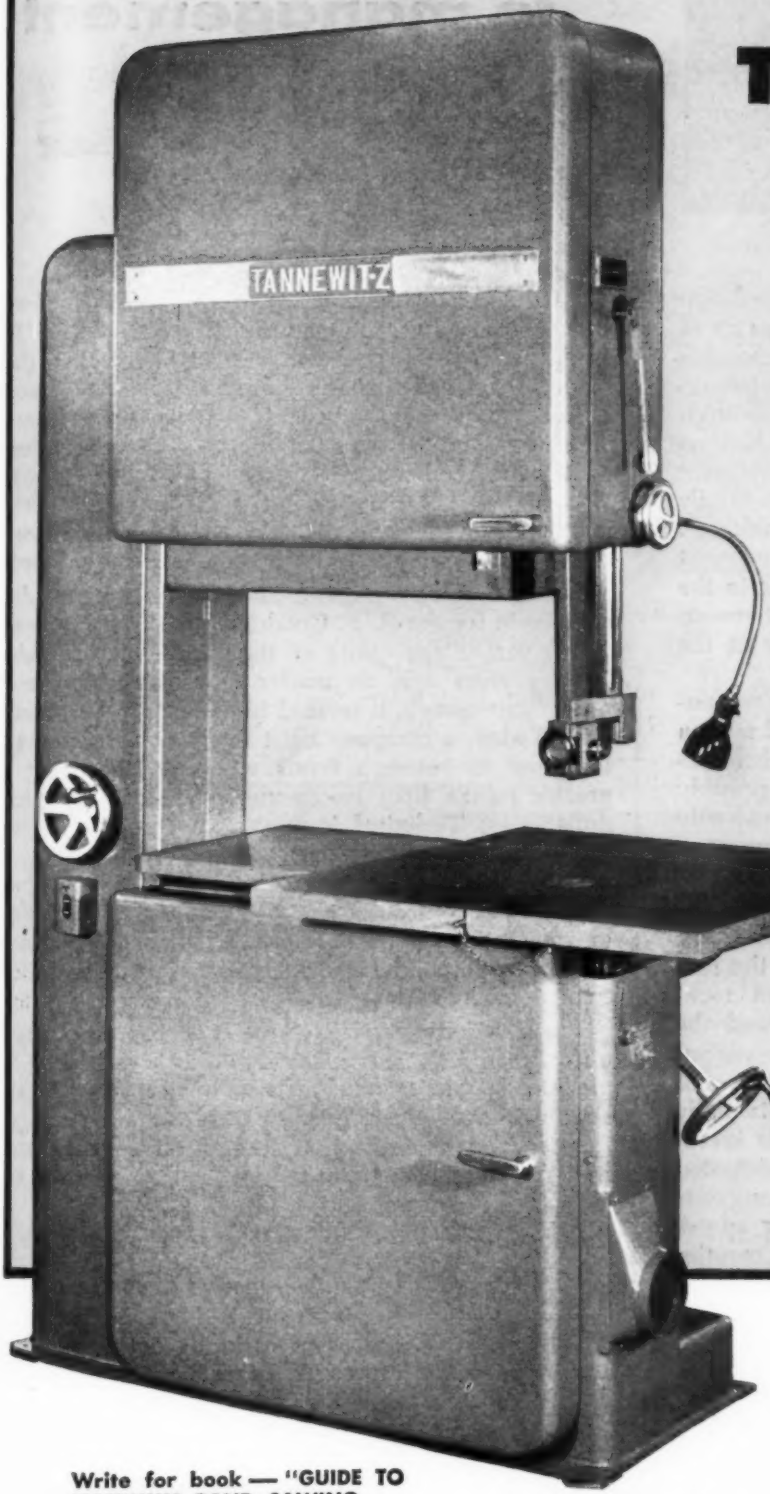
- *Public education about specific facts.* Yes, the public knows something of the beauty of wood, but we need to spell-out specific reasons as to how wood is better for a particular product or purpose.

We shall not do these things by bending people to our ideas. When we can understand how the customer thinks and feels and reacts to wood products, then we will really advance toward these basic objectives.

Some several years ago we helped popularize this slogan: "Who if not you, when if not now?" This is the time to ask for an answer in action, not theory!

E. McDaniel
Editor

# NEW and VASTLY SUPERIOR




## TANNEWITZ

### TYPE GHN-E

## BAND SAW

For many years TANNEWITZ HIGH SPEED BAND SAWS have been universally recognized as head and shoulders superior to everything in their field. And now with the advent of the TYPE GHN-E they offer these further highly advantageous features:

1. **STREAMLINED DESIGN** with heavier construction members than are used in any other machine of its type—solid as a rock.
2. **GREATER CAPACITY**—unobstructed from blade to column. Approximately 6 inches greater vertical clearance.
3. **EASIER BLADE TENSIONING** by remote control hand wheel on column.
4. **INSTANT BLADE TRACKING ADJUSTMENT** with handily located lever and window above it.
5. **AUTOMATIC HYDRAULIC AUTOMOBILE BRAKES** with or without automatic application when blade breaks.

PLUS . . .

TANNEWITZ patented SPEEDI-CHANGE WHEELS — GEARED GUIDE POST — DUST REMOVAL SYSTEM — DOUBLE DUTY GUIDES and many other structural superiorities which make these machines capable of quickly liquidating their cost through increased production and lowered costs. Write or phone for complete details.

GL 6-1729
GRAND RAPIDS,
MICHIGAN

Write for book — "GUIDE TO MAXIMUM BAND SAWING EFFICIENCY"

THE
# TANNEWITZ
WORKS, INC.

# to management

## Manpower and Population

*There is concern by economists over population growth* and the fact that many former estimates of potential markets, economic growth and expansion may be obsolete. The Bureau of the Census has released new projections of the number of households and families to 1980. In March, 1958, we had an estimated 50.4 million households consisting of over 43 million families, plus nearly 7 million non-family households. By 1980, the number of households will rise from 50.4 to 69.4 million, according to the lowest census projection, or to 76 million, according to the highest projection. By taking the mid-point between these two, we can look for a 44% increase in the next 22 years.

Another recent projection suggests that our population will rise from 175 million (1958) to 272 million (1980). The enormous population and household explosion facing us between now and 1980 will possibly test our saving, investing and tax-paying capacity as it has never been tested before—indeed, our very capacity to govern ourselves.

## Business Outlook

*Soviet economic and military competition,* the rate of U.S. population growth, the increase in technological and "automation" unemployment, and the desired volume of U.S. foreign aid to underprivileged nations will all influence the immediate future of business. Recovery in 1959 will be aided substantially by inventory rebuilding. Retail and wholesale inventories are particularly low in view of anticipated sales. Pickup in new orders now underway suggests that such inventory restoration is gathering speed.

*Unemployment fell in most cities* in recent months. However, when compared with '57 or earlier figures, the picture is far from rosy. Seasonal employment will begin to pick up, but there are thousands of June graduates who will be joining the labor market.

## Coming Events

March 19-20 . . . Annual Meeting, Southern Hardwood Producers, Inc., New Orleans, La.

April 11-15 . . . Machinery Show and Annual Convention, Southern Pine Association, New Orleans, La.

May 25-28 . . . A.S.M.E. Design Engineering Conference, Philadelphia, Pa.

June 14-17 . . . National Plywood Distributors Association, 17th Annual Convention, Atlantic City, N.J.

## Research

*Small business operators can reap a golden harvest* through study of statistics issued by the U.S. government, the biggest gatherer of statistics in the world. The Small Business Administration has issued a booklet, "Practical Business Use of Government Statistics," and it is available from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 20c. It offers practical information to owners and managers of small businesses on how Federal government statistics can be used.

*James M. Flounders,* director of new products development for the B. F. Goodrich Industrial Products Co., gives us the quote of the month on research: "A few years ago, no matter how you spent your money in research, it seemed to pay off. You couldn't miss. Today, a company must find the one best way to spend its research funds wisely so as to get a greater return than its competitor on the research dollar. . . . Technical improvements are coming so rapidly that many companies now derive the major portion of their sales revenue from products that did not exist 10 years ago." Flouders also said that one of the most obvious reasons for new product development is to achieve a rate of growth faster than your industry or the market you are serving.

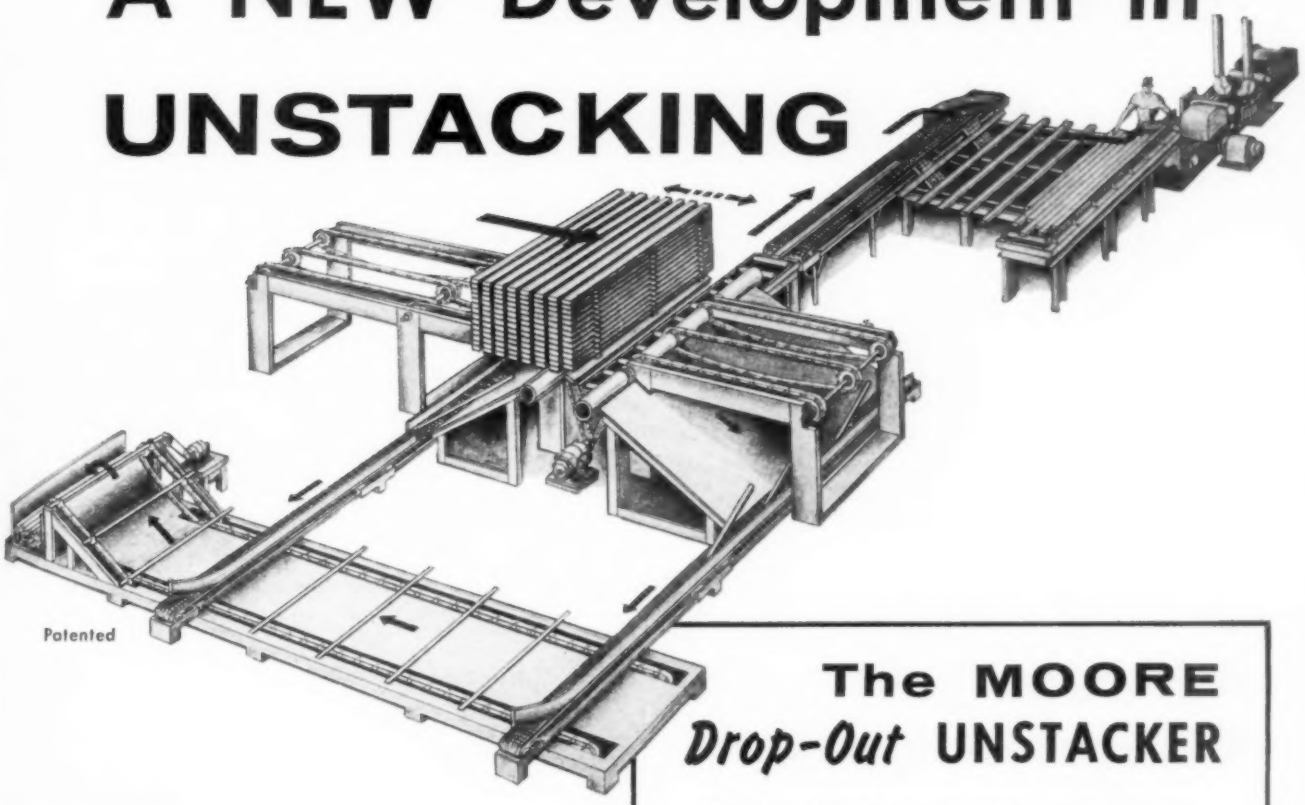
*The Small Business Administration* has established an office of management and research assistance to aid small business firms through research studies, special workshops, study groups and courses; management and technical publications and management and marketing counseling.

## Production

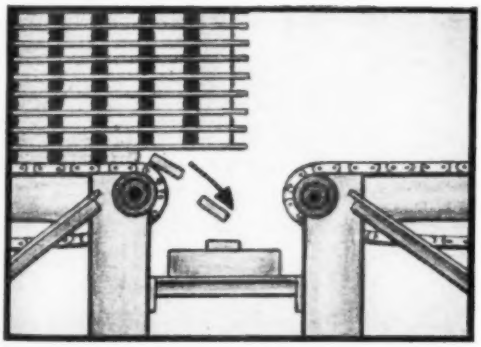
*What does the automobile market have to do with wood products?* Here is an interesting comment from Prentice-Hall, "Big flashy cars losing out as symbols of social status. Moreover, other pastimes, boating for one, are making serious inroads."

The U.S. Labor Department is now in the process of increasing the hourly minimum wage rate set by the Federal government for companies working on government contracts. Consideration is being given to the inclusion of missile and electronics industries under the provisions of the Walsh-Healey Act, which establishes the minimum wage at $1.05 per hour. These industries are currently covered by the $1-an-hour minimum wage set by the Fair Labor Standards Act.

# A NEW Development in UNSTACKING



Patented



Boards are unstacked—ONE AT A TIME. Ideal for feeding planers, trimmers, cut-off saws and resaws.

This NEW development can be the answer to your unstacking or machine-feeding problem. For full details, write, wire or phone today.

## The MOORE *Drop-Out* UNSTACKER

Here's the latest in low-cost, power-handling—a lumber unstacker that operates from the bottom of the load. No sliding, pulling or pushing boards off the top of the load!

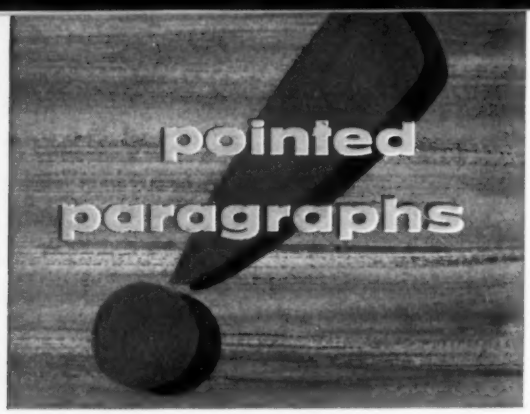
With the Moore Drop-Out Unstacker, the load moves back and forth across a "drop-out" slot, where each board falls by gravity and moves automatically to the next operation. Sticks are removed automatically to storage bins.

The Moore Drop-Out Unstacker operates by REMOTE CONTROL. One operator at the planer or other machine controls flow of boards — no man is needed at the unstacker.

# MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE FLORIDA | BRAMPTON, ONT. CANADA | VANCOUVER, B. C. CANADA | NORTH PORTLAND OREGON




Comments From The Editor

On New Products, Industry

Trends and Current Events

A new market for sawdust may be just around the corner. In February, 20 tons of saw kerf chips—a modified form of sawdust—were scheduled for production tests in the manufacture of paper. If the tests are successful, there may be a new market for wood waste. The chips are the product of a new type saw blade which has been developed by J. T. Griffin a lumberman.

*One of the most neglected trees of the northeastern hardwood forests, beech, may be headed for new economic importance. Two groups of northeastern lumber processors have met in the last month or so to explore possible wider uses of this plentiful but often scorned wood. Competition from Japan, in the form of American period furniture made from beech, is one of the many factors leading northeastern lumbermen and manufacturers to re-appraise their attitudes and policies governing use of beech.*

Does any reader remember that *Hitchcock's WOOD WORKING* was aware of this situation sometime ago? In May 1957, we published one of Nelson Nash's articles for the American Hardwood series. This article was on beech and reprints are still available. Ask for "Availability and Utilization of Beech," by Nelson Nash.

*Polyethylene is now being used to line holes containing water for fire fighting. Its uses and advantages includes relaying water from sump, light weight, cheapness and expandability. If the sides are kept level and covered with earth, water can fill the entire hole, leaving no plastic exposed to sunlight, which causes some deterioration. The use of polyethylene for lining holes will provide a means whereby the spring flow at high elevations can be stored for use during the dry seasons.*

Liquid plywood glue is now being hauled in giant rubber bags. A truckload of plywood was emptied from a flat-bed truck recently in San Francisco. The driver then picked up a bulk load of liquid plywood glue to carry on his return trip to the plywood plant. U. S. Rubber is producing these bags in capacities from 5000 to 25,000 gal. Still in the experimental stage, savings in shipping charges have been tremendous.

WOODWORKING KNIVES
THIN PLANER KNIVES
VENEER KNIVES
CHIPPER KNIVES
HOG KNIVES
CORRUGATED KNIVES
DOWEL KNIVES
SLOTTED PLANER KNIVES
THICK SLOTTED KNIVES
SHAPER STEEL
THE WAPAKONETA MACHINE COMPANY
One of America's LARGEST and OLDEST INDEPENDENT MACHINE KNIFE MANUFACTURERS
Since 1891 The Wapakoneta Machine Company has grown in plant, equipment and skills. Today it is one of the largest plants in America devoted exclusively to the production of machine knives.
Wapakoneta produces knives for every industry, including woodworking, paper and pulp, veneer, plywood and steel. The woodworking industry alone requires hundreds of different types and sizes. Wapakoneta makes them all and engineers each to the specific job. The type of steel, the size, shape and bevel as well as other special features get the attention possible only with Wapakoneta's more than 65 years' experience and craftsmanship.
A complete catalog is free. Write for it.
Knives Engineered for the Job
Since 1891
THE WAPAKONETA
MACHINE CO.
WAPAKONETA 2, OHIO

# NEW... DUO-FAST EASY TRIP AIR TACKER

## GREATER TACKING SPEED ...with 79% less effort!

Entirely new, here is the EASY TRIP line of DUO-FAST Air Tackers. And with it comes a brand new concept in staple-tacking ease. Thanks to a new design principle, the pressure required to trigger these models has been cut by 79%! Result: an all-time low in operator fatigue!

**Increased operating speed.** The special easy-trip trigger—combined with a faster piston return—results in greater operating speed for beginners and skilled hands alike. Hence you get more production . . . in less time.

**Easy, one-hand operation**—your other hand is always free to hold and position the work. These EASY TRIP models are light and easily handled, too. And your operators will especially like the fist-fitting new "Comfort Grip."

**Free Service Guarantee:** Available in a variety of cost-cutting models, the EASY TRIP line includes the right air tacker for every production job . . . including yours. And remember: Each one is backed by DUO-FAST's money saving FREE SERVICE GUARANTEE. Why settle for less?

***FREE: Send for free EASY TRIP Bulletin FAT-25***

**New Touch-trip model . . . fires on contact**

The same great responsiveness and speed as the EASY TRIP model at left is featured in this new DUO-FAST Touch-Trip Air Tacker. Drives staples as fast as you touch trip to the material. No trigger action required.

**DUO-FAST**

**Staplers · Tackers · Staples**

**FASTENER CORPORATION**
**3752-54 River Road, Franklin Park, Ill.**

Please furnish additional details on the DUO-FAST EASY TRIP Air Tackers.

Name_____

Company_____

Address_____

City_____ Zone_____ State_____

9071

# YOUR GUIDE TO *Better* ADHESIVES . . .

The Perkins Trade Mark is your guarantee of quality and reliability when you purchase glues. Since 1899, customer-confidence in Perkins has grown steadily—a deserved tribute to superior products backed by competent service and rigid ethical standards. When you use a Perkins Glue in your operations, you'll agree with other leading woodworkers—*that Perkins serves you best!*

## GLUING PROBLEMS?

Dispose of them by calling upon the skilled assistance of the Perkins Technical Service Department. Specialists in gluing methods will study your particular operations and offer suggestions where pertinent. There is no cost or obligation involved in your use of this unbiased advice.

**IT'S A PERKINS SERVICE!**

P
PERKINS GLUES

**RESIN** — Hot Press and Cold Press • Liquid or Powder Type
**CASEIN** — A broad line to meet your specific requirement
**VEGETABLE** — As originated and perfected by Perkins Glue Co.
**ANIMAL** — Ready-to-use Liquid • Heat-then-use Gel

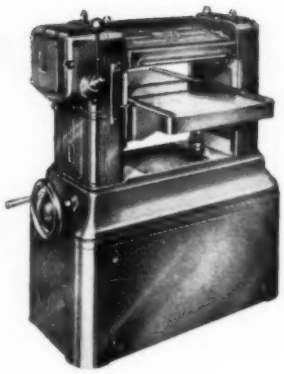
• • •

**VENEER AND CORE REPAIR COMPOUNDS • VENEER SIZE**
**GLUE ROOM SPECIALTIES • MIXERS • SPREADERS • BRUSHES**

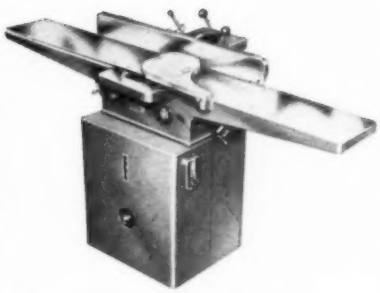
RESIN CASEIN **PERKINS** VEGETABLE GLUES

*ESTABLISHED 1899*

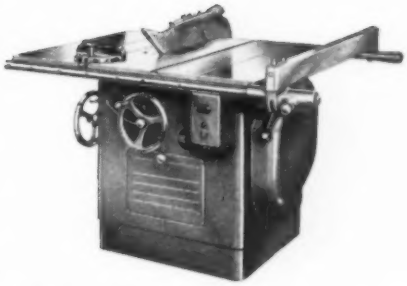
LANSDALE, PA. KITCHENER, ONT.



13" X 5" PLANER



8" LONG BED JOINTER
Also 4" Deluxe and Long Bed 6"

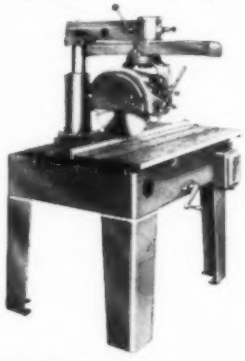


12" TILTING ARBOR SAW
Also 9", 10" Unisaw, and 10" Bench

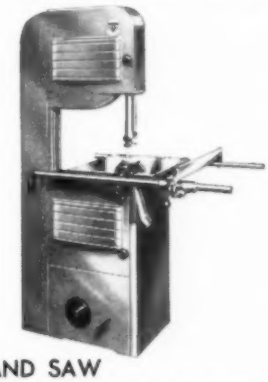
24" SCROLL SAW

HEAVY DUTY SHAPER

12" ABRASIVE DISC FINISHER
Also 6" Belt Abrasive Finishing



12"-14" RADIAL SAW
Also 16"-20", 10", "Super 900" 9"



20" BAND SAW
Also 14" Wood-Metal, 14" Wood

12" VARIABLE SPEED WOOD LATHE
Also 12" Standard

# DELTA POWER TOOLS

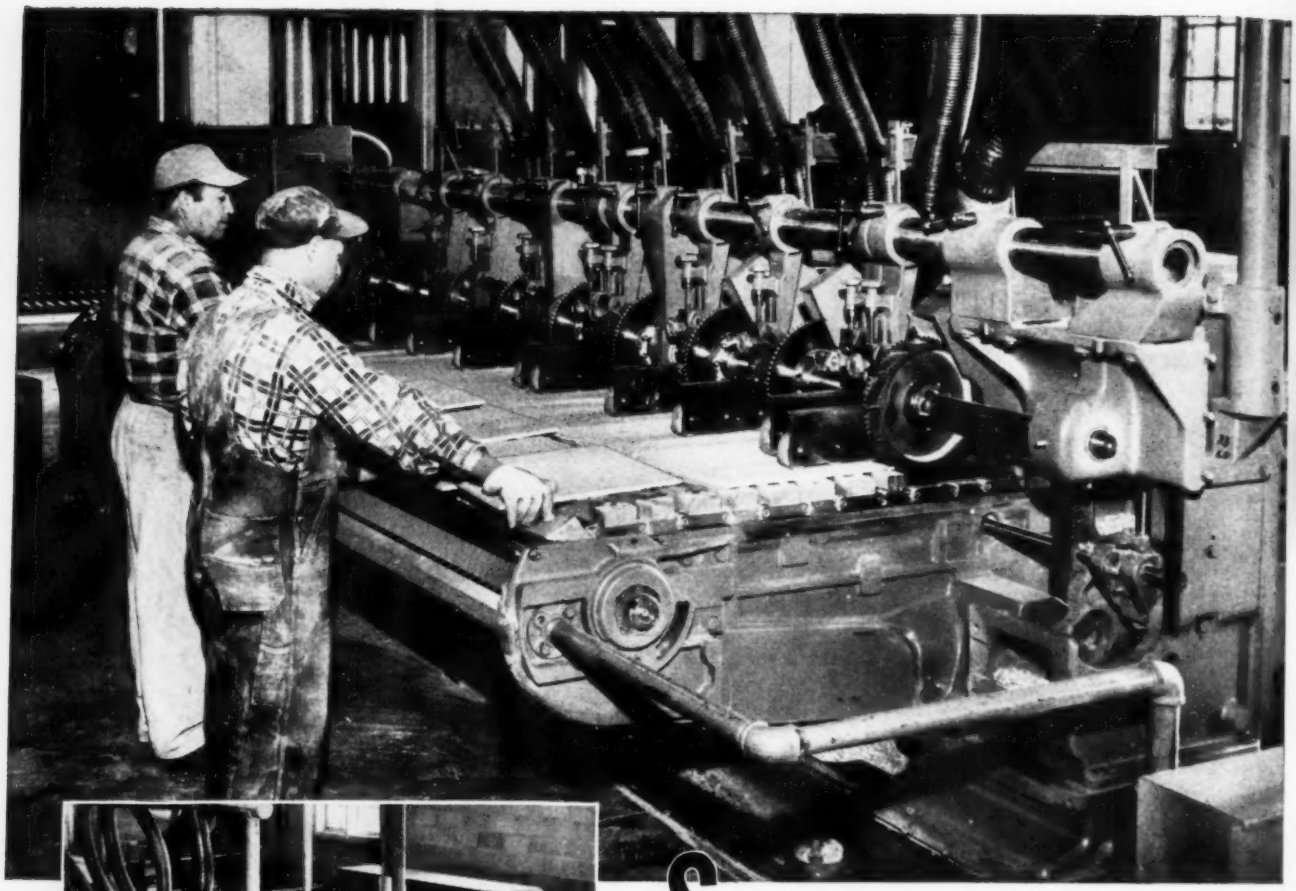
## *match the tool to your job for bigger savings*

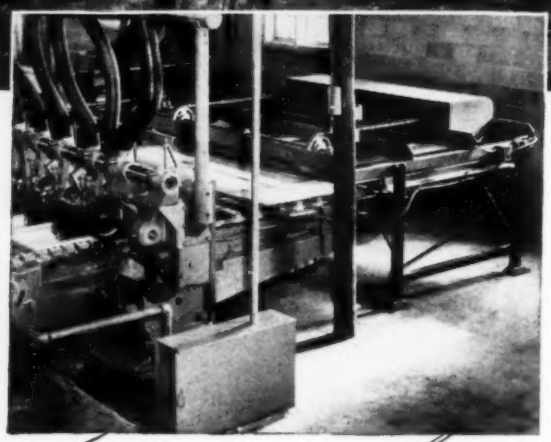
You'll get faster production with less waste when you choose the Delta tool with the capacity and performance features you need. No matter what your requirements—from heavy furniture production to light finishing operations—there's a Delta tool to fit the job in the world's most complete line—53 machines, 246 models, over 1300 accessories.

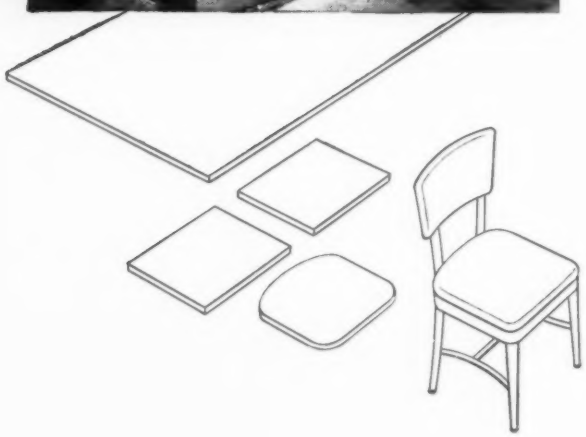
Delta Power Tools give you better value for your money because *every* model in the line offers the power, precision performance, and ruggedness that have set industry standards for years—they cost less to use, less to operate, and less to maintain. See the complete line of Delta woodworking tools and accessories at your Delta Dealer—he's listed under "TOOLS" in the Yellow Pages.

**FREE . . . DELTA INDUSTRIAL CATALOG**
Pictures and describes the complete line of Delta woodworking tools and accessories. Write Rockwell Manufacturing Co., Delta Power Tool Div., 666C N. Lexington Ave., Pittsburgh 8, Pa.

DELTA POWER TOOLS
another fine product by
**ROCKWELL**





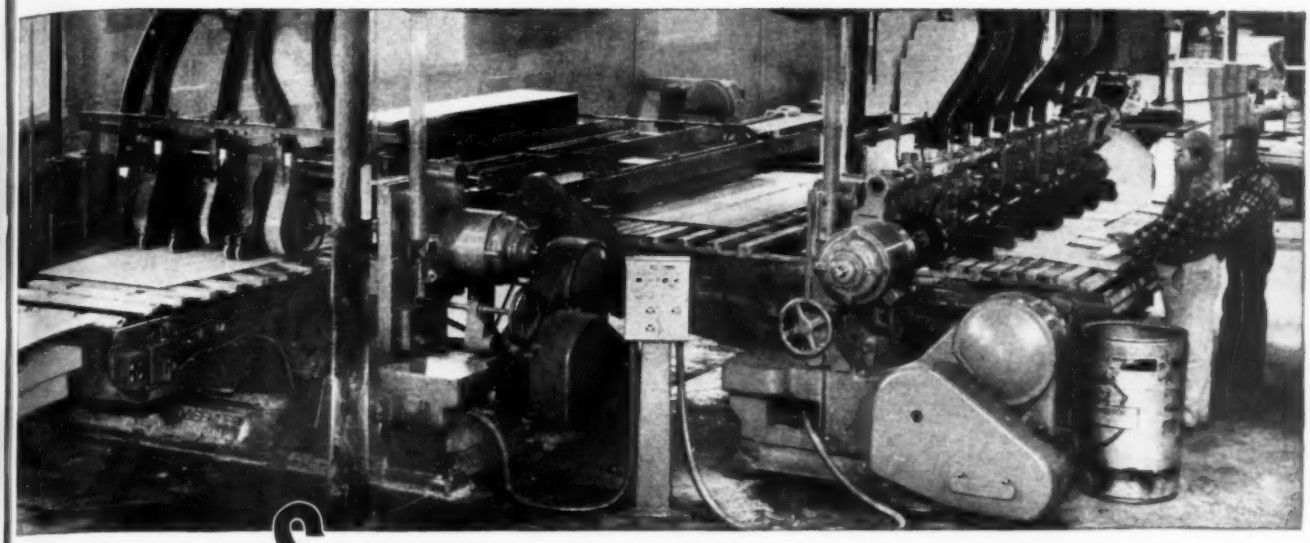


Swain Industries, Inc. produces particle board components completely machined to customer's specifications. In addition to curved chair backs—chair seats, core stock for folding doors, table top underlayments and other special custom built-up materials are cut on the Greenlee machines. No operator is required at the transfer. Material can by-pass second machine if desired. Greenlee machines, long known for their dependability and low maintenance costs help keep production at peak levels for Swain Industries, Inc.

*Put a Profit in Your Woodworking With Greenlee Machines*

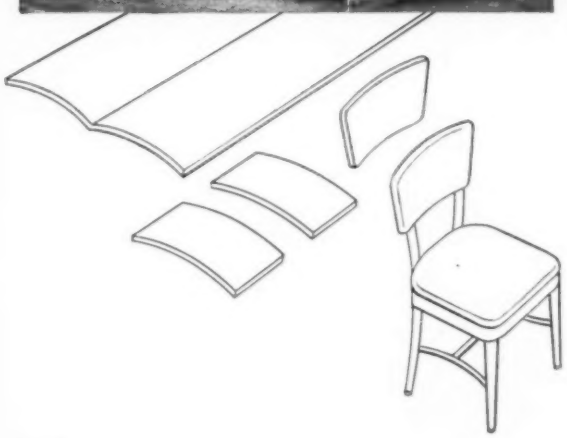
MACHINERY & TOOLS

**GREENLEE** ***Specialized Machines Produce Greater Profits***



# SWAIN INDUSTRIES, INC.

## CUTS FLAT AND CURVED PARTICLE BOARD



### On GREENLEE slat-bed multiple cut-up saws with automatic transfer

Swain Industries, Inc. of Seymour, Indiana had a difficult problem to solve. They needed equipment that would not only cut flat but *curved* sheets of particle board . . . speedily and economically. Representatives of Greenlee and Swain working together in close cooperation came up with the answer.

The Greenlee Cut-Up Saws shown above can take five 37″ x 118″ double curved panels and convert them into 90 accurately cut chair backs in one minute. Flat sheets can be cut even faster.

Feed rates are variable up to 110 feet per minute. Set-ups are made easily and quickly . . . can be changed from flat to curved material in a short time. If you have cutting problems involving particle board or any other type of panels, invite Greenlee to help solve them. Write for complete information.

MACHINERY & TOOLS
GREENLEE

WOODWORKING MACHINERY MANUFACTURERS' ASSOCIATION WMMA

**GREENLEE BROS. & CO.**

1814 TWENTY-FIRST AVE.
ROCKFORD, ILL.

*Hough Payloader handles sawmill waste in wood yard. (See 1 in floor plan which appears on page 26.)*

# HOW TIMBLEND IS MADE

By Bert Goldrath

▼ With some half a hundred wood particle board plants operating in the United States, this facet of the wood products industry can no longer be considered an infant. Nevertheless, the industry took a giant step forward with the recent activation of a $4,000,000 shavings board plant at Arcata, Calif. Fully integrated and automated to the "nth degree," the plant is in full production of Roddis Plywood Corporation's widely heralded Timblend.

More than 65,000 surface feet of medium-density composition board are being turned out every day on three shifts, working seven days a week. Annual volume on a ¾" basis is at the rate of 24,000,000 surface feet. An average of only 30 workers per shift is required to keep production ruling. Plant superintendent is Roy Hunt.

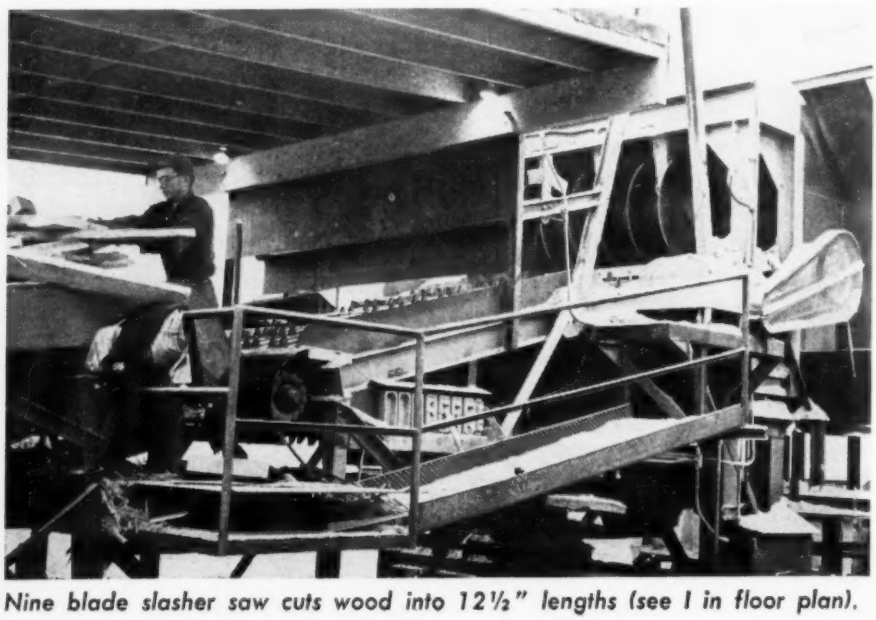
*Hitchcock's Wood Working* asked Robert K. Molloy, Timblend Division Manager, "What influenced the Roddis organization to enter the particle board field in the first place?"

His answer: "We feel there is a new trend in wood utilization—in making better use of the raw material. For one thing, there is a growing shortage of peeler logs for manufacturing plywood. For another, technology has advanced to the point where we are able to automate a plant now for maximum output with minimum cost. And Timblend is a dramatic example of how science can take a waste product that formerly went to the burners, and convert it into a usable quality product."

Twenty years of research and seven years of field testing paved the way for this production system. Timblend is manufactured at the Arcata plant by the Behr process of using prepared wood shavings, and employs machinery largely of German manufacture. Said to be the only plant of its type in America, the Timblend facility was engineered by the Donald Seip Co., New York City.

Automation guarantees controls closer than those possible in a manual operation, Mr. Molloy said. Timblend's system of electronics assures a uniform product with all elements under constant control.

Timblend is available in a variety of forms. Standard panels come off the production line 51" x 197", which nets a 4' x 16' panel. Thickness range is from .375 (⅜") to 1.125 (1⅛"), with most production at .750 (¾"). These dimensions tally with the most frequently used plywood sizes and thicknesses.



*Nine blade slasher saw cuts wood into 12½" lengths (see 1 in floor plan).*

To follow the flow of material and descriptions of plant operation, refer to the layout on page 26.

*Six Bezner disintegrators convert wood lengths to shavings (see 2 in plan on page 26).*

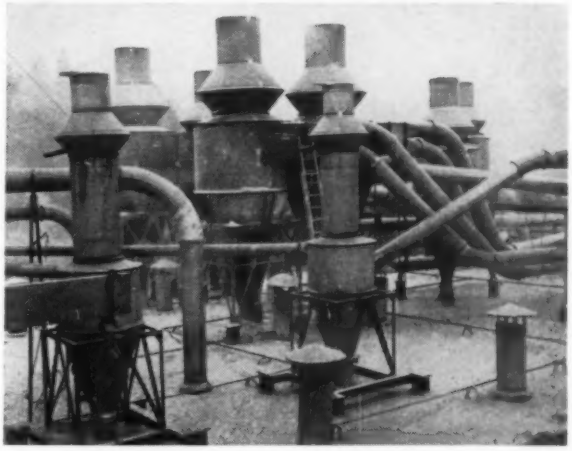
Wider panels are obtainable by butting and joining with urea formaldehyde adhesive in a high frequency edge gluer.

For decorative woodworking purposes, Timblend is also supplied with several different hardwood veneers, such as cherry, elm, walnut or mahogany—as light as 1/64" thick. Timblend in 4' x 8' x ¾" panels (and longer) is shipped to the Roddis plant at Marshfield, Wis., where it is veneered and manufactured into 7/16" architectural Craftwall, prefinished and grooved for a random plank effect.

Filling of the Timblend surface to provide a pure paintable face is done to order at Arcata. A fabrication shop produces entire components, veneered or plain, such as ping pong tables, chair bottoms and cupboard doors. Cut-to-size panels are available to custom specifications.

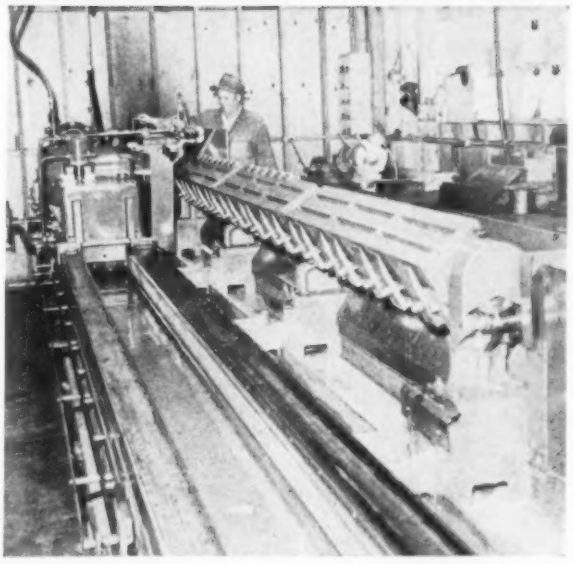
According to Roddis management, there seems to be no end of uses for its shaving board. It is admirably adapted for furniture manufacture; for built-ins in kitchen and bathroom; for school, laboratory and commercial applications; as sliding doors; for store fixtures, and for game tables. A few statistics about the product itself may help to explain its versatility.

Close controls hold thickness to a tolerance of ±.003 inch. Modulus of elasticity is 525,000 p.s.i. Over-all specific gravity is .63 or about 39 lbs. per cubic foot density. Modulus of rupture was tested at 3350 p.s.i.; hardness at 900 lbs.; moisture content 8% (±1%), and internal bond 70 p.s.i. Absence of telegraphing makes crossbanding unnecessary. Screw holding power, with a No. 8 type A sheet metal screw in a ¾" pilot hole, was rated at 275

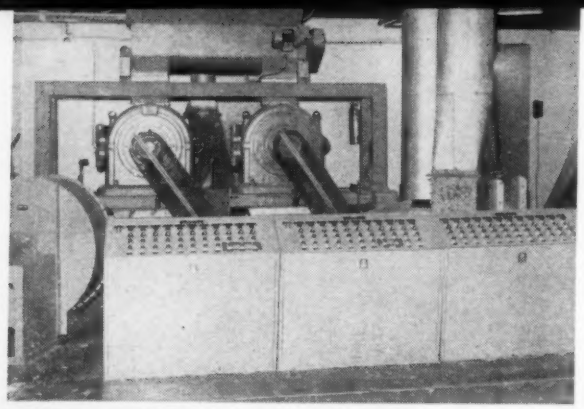


*Battery of cyclones on roof for blowing wet shavings to wet storage bunkers. Small stacks are dryer exhausts.*

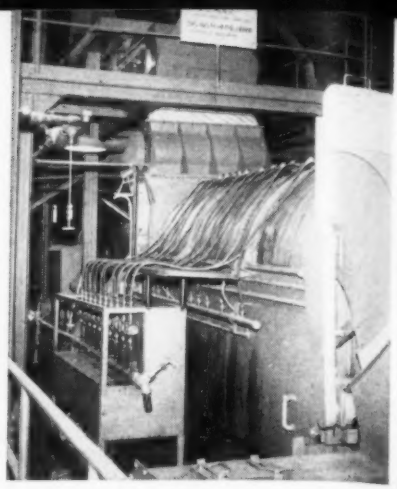
*Veneer waste is converted to shavings by two Krenzler disintegrators (in Disintegrator Room but not indicated in layout).*



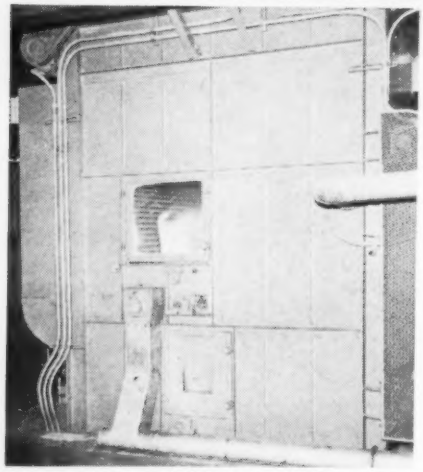
*Blades are kept sharp on the 170" Hanchett knife grinder. Type is Mammoth traveling wheel AK grinder (not shown on plan).*



*Condux hammer mills in mill room break shavings into smaller fractions. Square D control panels in foreground (see III in plan).*

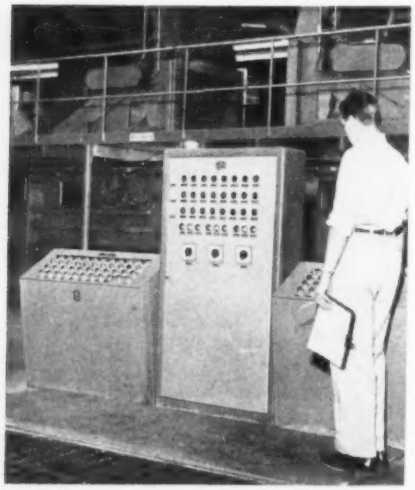


*Two Drais mixers, one of which is seen in previous picture of glue mixing station. The mixers blend shavings with a binder (see 14, 15 on floor plan). The mixing tank is shown in the lower part of the photo. Above are a belt balance and a metering device for glue (see 13).*



*One of two Schilde wind sifters for separating coarse surface shavings from fines.*

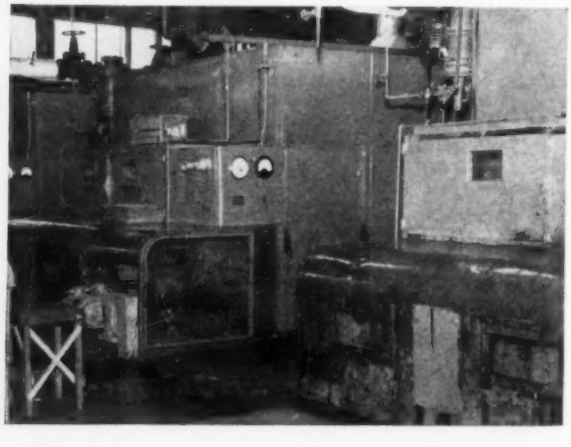
lbs. on the face and 215 lbs. on edges. Shear strength before total board failure was 5,760 p.s.i. In a high humidity dimensional stability test at 100° F. changes after drying were recorded at zero for length, —.02% for width and +1.2% for thickness. The sound absorption coefficient of .06 was rated similar to that of wood paneling. Tests for the above were conducted according to ASTM's tentative methods of test for evaluating properties of building fiberboards. In general, the board is warp free, dimensionally stable and has the characteristics of pine relative to edge and end treatments.



*Schilde and Square D panels control operation of bank of driers in background (see IV on plan).*

The basic raw material of Timblend is wood in the form of bark-free, rot-free sawmill trim, slabs and edgings. The specie is Douglas fir.

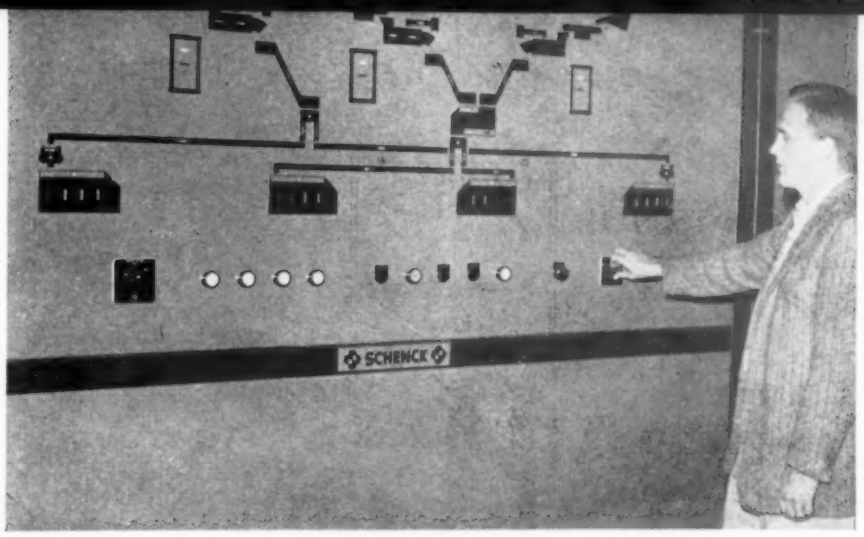
However, the laboratory is continually experimenting with other species and currently is testing redwood—a fairly plentiful specie in northern California. The plant buys about 95% of its raw material from the outside, with the major costs being those of culling and transportation. Moisture content of the wood as delivered, averaging sap and heartwood, is 39% on a wet basis measure. Veneer waste from the adjacent Roddiscraft plywood plant is also used in board manufacture.



*Three Schilde driers reduce moisture content of shavings (see 9).*

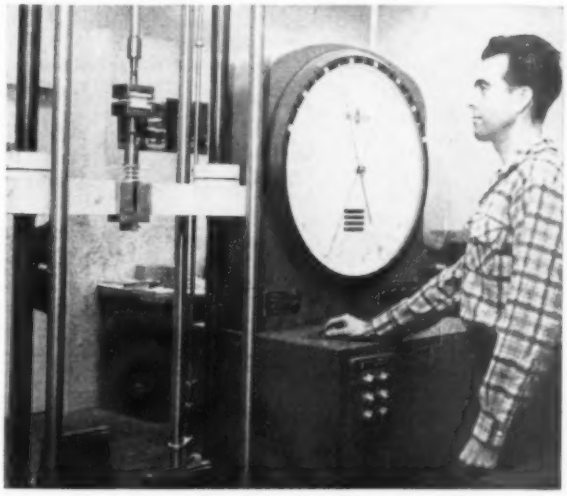
Sawmill waste is delivered to a wood yard on the premises and dozed into a pile with a Hough "Payloader." A two-man crew feeds a nine-blade slasher saw, cutting the random lengths to a uniform length of 12½". The material is cleansed in a water bath via conveyor into the plant, where it is fed into a battery of six Bezner disintegrating machines. These produce an .008" thick shaving for board surface layer stock and a .014" thick shaving for core layer stock. In plan view, the surface shavings measure approximately ¾" square; core shavings are about 1½" square. Two Krenzler shaving machines (disintegrators) handle clean waste veneer for core stock developing shavings approximately 1½ x 3/16 x .014". Organized thickness checks are made at all machines to control thickness range variances.

Next the shavings are air-blown to surge storage bunkers for transfer to refining mills. From a battery of roof-mounted cyclones the wet shavings flow down into the wet bunkers (Schenck). The refining mills produce the shavings by width and length (thickness has already been controlled by the disintegrators). Each type of shaving




*Schenck panel for control mixing on second deck. Lighted arrows show flow of materials. Red light glows and bell rings when bunkers are full.*

*Glue mixing station. Most equipment by Drais except for Schenck scale (see 18 on plan).*

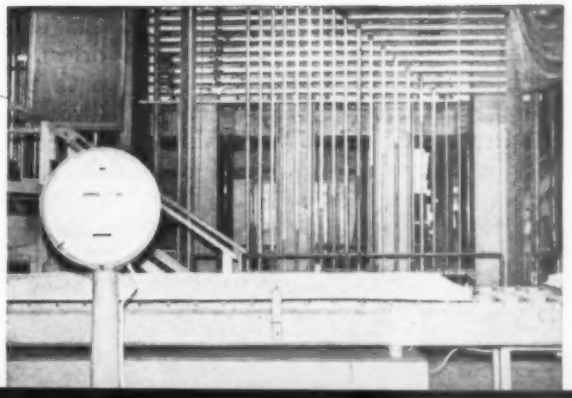


*Lab Chief William Ferry tests a section of Timblend for internal bond strength on a Tinius Olsen electromatic tester (see Lab on plan).*

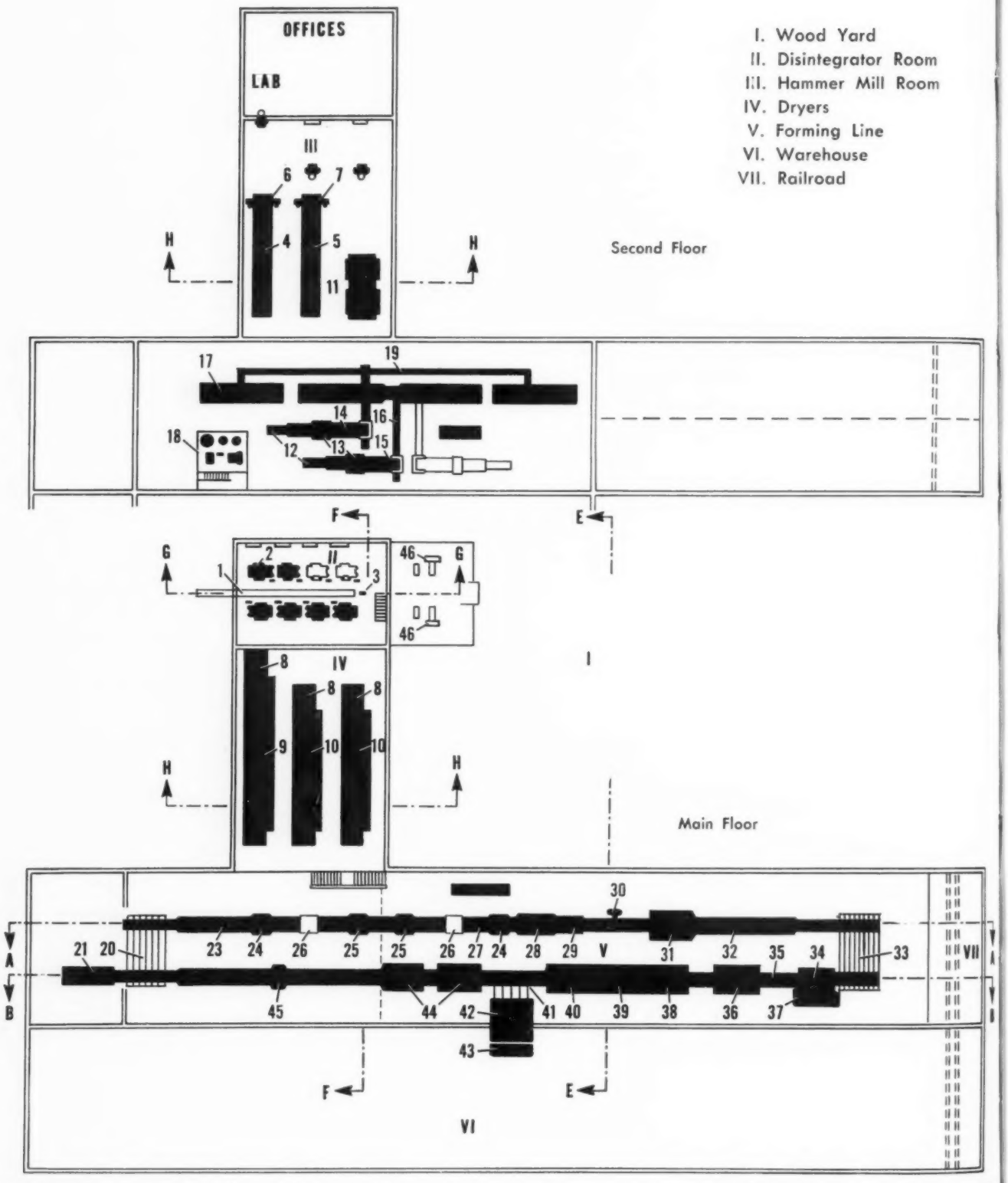
*Product samples are placed in a Central Scientific Co. forced convection oven for determination of moisture content and resin curing rate.*

*This station might be termed the heart of the plant, where glue and shavings combinations are coordinated.*

*Individual mats on forming line are weighed at Schenck scale (see 30 on plan).*



## FLOOR PLAN OF TIMBLEND PLANT




is handled separately from this point on: surface storage bunkers with surface mills and core surge storage bunkers with core mills.

After milling the surface shavings are transported by air to a bank of three large Schilde driefs with Schilde and Square D controls. One is a surface stock drier and the other two are core stock driers. Prior to entering the driers, both types of shavings pass over three Schilde shaker screens to separate the usable product from the fines, which are blown to the boiler house for fuel. In the mill room, condux hammer mills break shavings into smaller fractions.

Wood moisture content for both core and surface shavings entering the drier is 39% wet basis measure. Traveling screens within the drier carry the shavings through hot circulating air, which passes over coils of water heated to 375°F. The moisture content of surface shavings leaving the surface drier

## Use this legend and the floor plan on page 26 to see flow of material and to locate the views shown in the photographs.

1. Conveyor for wood going to disintegrators.
2. Disintegrators (Albert Bezner, Maschinenfabrik, Ravensburg, Germany).
3. Hog.
4. Bunker for wet suface shavings (C. Schenck, Maschinenfabrik, Darmstadt, Germany).
5. Bunker for core shavings (C. Schenck).
6. Hammer mills for surface shavings (Condux-Werke, Hanau, Germany).
7. Hammer mills for core shavings (Condux-Werke).
8. Vibrating screens (B. Schilde, Bad Hersfeld, Germany).
9. Dryer for surface shavings (B. Schilde).
10. Dryers for core shavings (B. Schilde).
11. Windsifter for surface shavings (B. Schilde).
12. Vibrating screens (C. Schenck).
13. Belt balances (C. Schenck).
14. Mixer for surface shavings (Drais-Werke GmbH., Mannheim, Germany).
15. Mixer for core shavings (Drais-Werke).
16. Trough conveyor (C. Schenck).
17. Bunker for glued surface shavings (C. Schenck).
18. Glue Mixing (Drais-Werke).
19. Bunker for glued core shavings (C. Schenck).
20. Cross conveyor for caul plates (C. Schenck).
21. Spare cauls.
23. Forming line (C. Schenck).
24. Forming machines for surface layers (C. Schenck).
25. Forming machines for core layers (C. Schenck).
26. Proposed forming machines for core layers (C. Schenck).
27. Equalizing comb (C. Schenck).
28. Cross-cut saw (C. Schenck).
29. Screw conveyor for disposed shavings (C. Schenck).
30. Weight control (C. Schenck).
31. Prepress (Becker & Van Huellen, Krefeld, Germany).
32. Trim saw (C. Schenck).
33. Cross conveyor (C. Schenck).
34. Mat Reject (C. Schenck).
35. Caul cleaning (C. Schenck).
36. Storage for cauls (C. Schenck).
37. Bunker for reject mats (C. Schenck).
38. Loading rack for hot press (Becker & Van Huellen).
39. Hot Press (Becker & Van Huellen).
40. Unloading rack (Becker & Van Huellen).
41. Separation of boards and cauls (C. Schenck).
42. Board conveyor.
43. Automatic stacker (C. Schenck).
44. Caul storage (C. Schenck).
45. Caul cooling (C. Schenck).
46. Disintegrators for veneer waste (Krenzler, Maschinen fabrik, Wuppertal-Barmen, Germany).

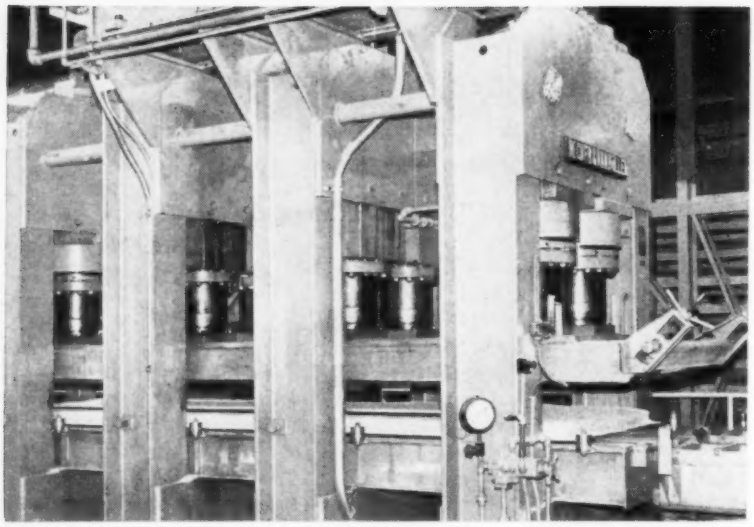
is 7%, and of core shavings leaving the core drier, 4.5%. These moisture percentages are critical relative to quality board manufacture and particularly close control is exercised at this step.

The dry surface shavings are classified through one of two Schilde wind sifting units, which separate the desired shavings from fines and heavy material. These fines are used as fuel, and the heavy material is metered in with the core shavings. After classification, the surface shavings are carried by air to the surface weight station unit preparatory to resin application. After drying, the dry core shavings are air-blown directly to the core weight station unit prior to resin application.

Urea formaldehyde resin is another basic raw material in Timblend production. Purchased from any of several vendors, the resin arrives at the plant by truck or tank car in solution that is 65% solid and 35% water. The Roddiscraft lab checks each incoming shipment relative to solids content, cure rate and pH factor. Purchases are based on performance.

Wax is a third basic raw material in the end product. Received by tank truck, it is used as a sizing agent. Resin, wax and water are mixed in a controlled mixing plant in pre-determined ratios.

As the clean, dry shavings are carried across their respective weight station units, the resin-water-wax solution is automatically metered to the spray nozzles in the mixers in a proportion depending on the weight of the charge of shavings. Based on a moisture content of 8% in the finished board ready for shipment, the over-all average dry resin weight will be about 8% (10% surface and 7% core.).



*A Becker & Van Heullen prepress partially compresses mats (see 31 on plan).*

After resin-wax-water spray on the shavings in their respective surface and core mixers (Drais), the treated shavings are mechanically conveyed to surge storage bunkers. At this point the average wood moisture content is 15%

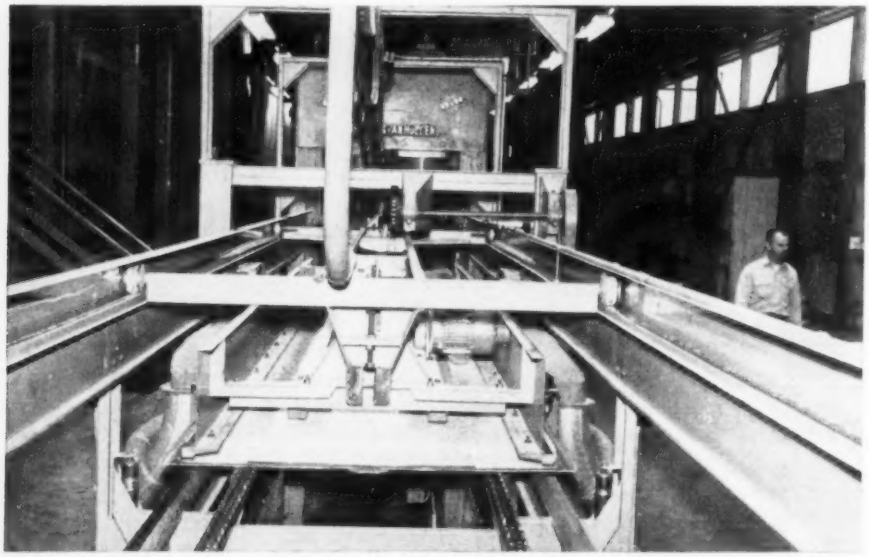
Board manufacture begins as shavings from the surge bins are felted onto a moving forming line consisting of interlocking aluminum cauls, or carrying plates, in four layers: one surface, two core and one surface. For .750" finished board, the over-all surface volume will be about 25% of the total mass in the mat. During the felting process, all shavings align themselves horizontally in a tightly-knit mass.

This critical phase is where Timblend's makers believe their product achieves its quality. They point out that the particles, not being hogged or ground, follow the natural grain of the wood. Shavings used here are always cut in the grain direction without crushing, thereby retaining the natural longitudinal stability and inherent strength structure of the wood. Each shaving, being controlled in its production, has a high surface area to volume ratio on a single plane. Shavings lie interlaced but all horizontal. Since the board is built of many tiny layers of shavings it resembles plywood, with the added advantage of being homogeneous: there are no internal or external voids to affect the product's machinability or screw-holding power. Higher effective internal bonding is claimed because of the shape of the flat particles as opposed to splinter, chip or spindle-type particle. An easy comparison is suggested by way of illustration: the effective bond is much greater if you glue together a stack of shingles than if you tried to glue a handful of golf balls.

Another point made in favor of Timblend's flat particles is that rough particles, in order to make any kind of bond, must be crushed, thus breaking down the natural wood structure. Such densification is unnecessary, it is claimed, where full surface-to-surface bond is achieved with shavings. In pressing Timblend mats, the wood itself is not crushed or broken down. Therefore, the product exhibits no tendency to spring back or to telescope.

Returning to the forming line, where the mats are felted with shavings, a fine water mist is sprayed onto the cauls prior to the felting operation to prevent pre-setup of the resin before pressing. The four-layer continuous mat is felted at four Schenck forming stations and passes through a traveling double separation saw (Schenck). An air blower carries off excess shavings. Now the individual cakes are separately weighed as they move automatically along a Schenck conveyor line. Those mats which do not fall within the specified range are automatically dumped into a reject bunker and reused as core material. The balance of the mats move along through a Becker & Van Huellen pre-press where they are partially compressed for more expeditious handling. A Schenck crossover conveyor transfers the mats to a parallel line running in the opposite direction.

Cauls are next automatically set up in a loading rack for entry into the 15-opening hot press. Mats are about 4½" high before entering the hot press. Up to the pressing operation, the entire mat felting system is handled automatically with precise mat forming control guaranteed. Now a fine water mist is sprayed on top of the mats to prevent pre-setup of the resin before pressure and heat are applied. Hot press cycle times vary, of course, according to the thickness of the



*Passing along conveyor, mats go through an edge trim saw (see 32 on layout).*

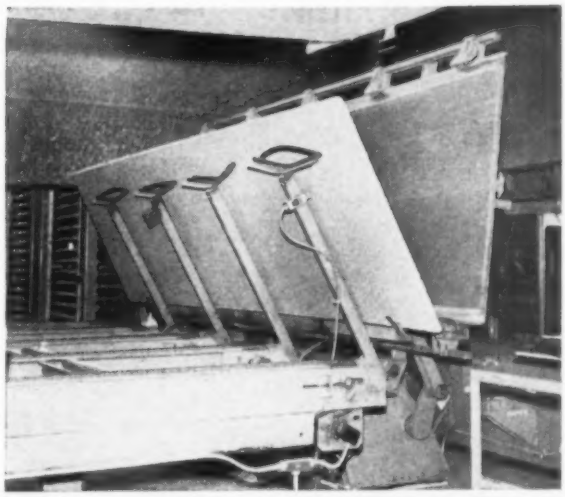
board being produced. Mats are consolidated under pressure and heat. The hot press is heated by hot water.

At the end of the press period mats enter an unloading rack, following which boards and cauls are separated on a Schenck machine. A board cooling device then brings board surface temperature down to desired heat. Boards are automatically stacked and transferred to inventory by fork lift truck. They remain in inventory until transported to the sawing, sanding and palletizing departments for shipment to customers all over the U.S. Equipment used in the cutting section includes a Globe double end trim saw which trims the sides, and feeds onto a Mereen-Johnson end trim saw. Surfaces are smoothed by a Yates-American sander.

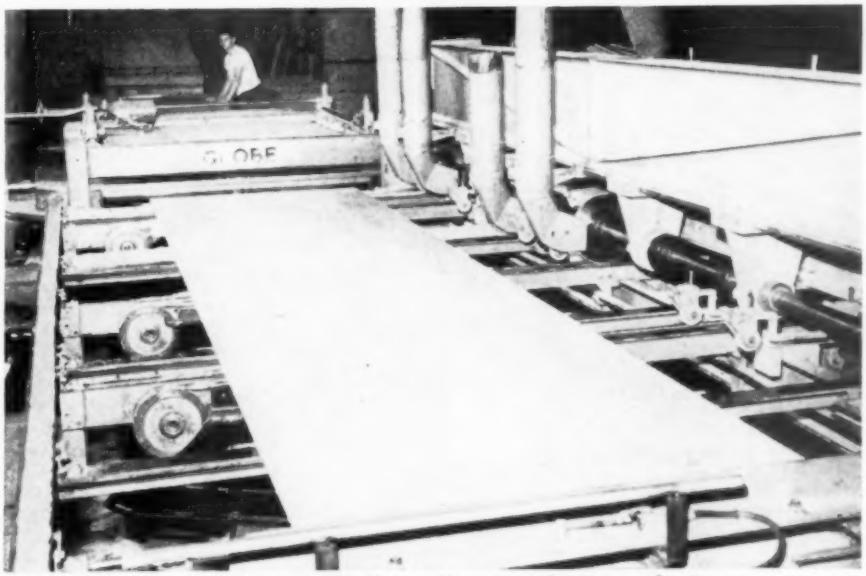
A railroad spur in one end of the building permits direct loading of cars by a Clark fork truck.

This report would not be complete without some comment on the brain of this highly-automated production plant—its well equipped laboratory. It is under the direction of of William Ferry, quality control superintendent, who is assisted by a wood technologist and two lab technicians. The lab has two main functions. First, the product is tested for all its physical properties –bending strength, internal bond, screw-holding ability, dimensional stability, and thickness and weight tolerances. Lab personnel also make checks of the production process—controlling properties of ingredients that go into the resin, moisture content of wood flakes, thickness and size of shavings. Control is exercized over every production step, such as press cycles, temperatures and pressures. In addition, tests are continually being made involving the product in every imaginable way it is used. A current test gauges the weathering ability of painted Timblend.

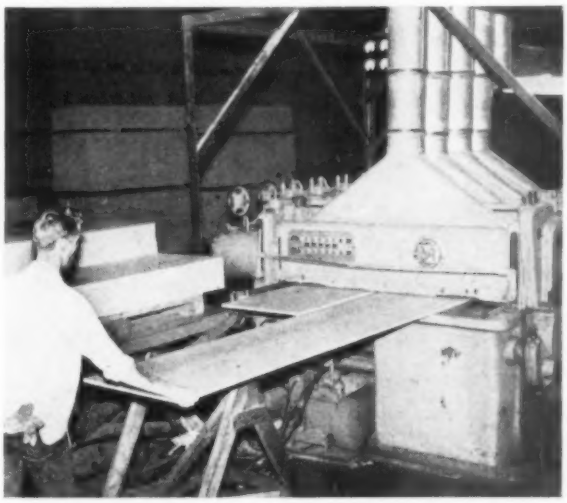
In a routine weight check, for example, three pieces 3″ x 16″ are taken across the 4′ width of a board to determine the specific gravity and weight variation across the board. Each piece is weighed to the nearest .001 of a pound, separately, and the weight per square foot is calculated from this value. This, combined with a thickness check, leads to calculation of specific gravity.



*Cauls are separated from mats by ingenious Schenck device (see 41 on plan).*



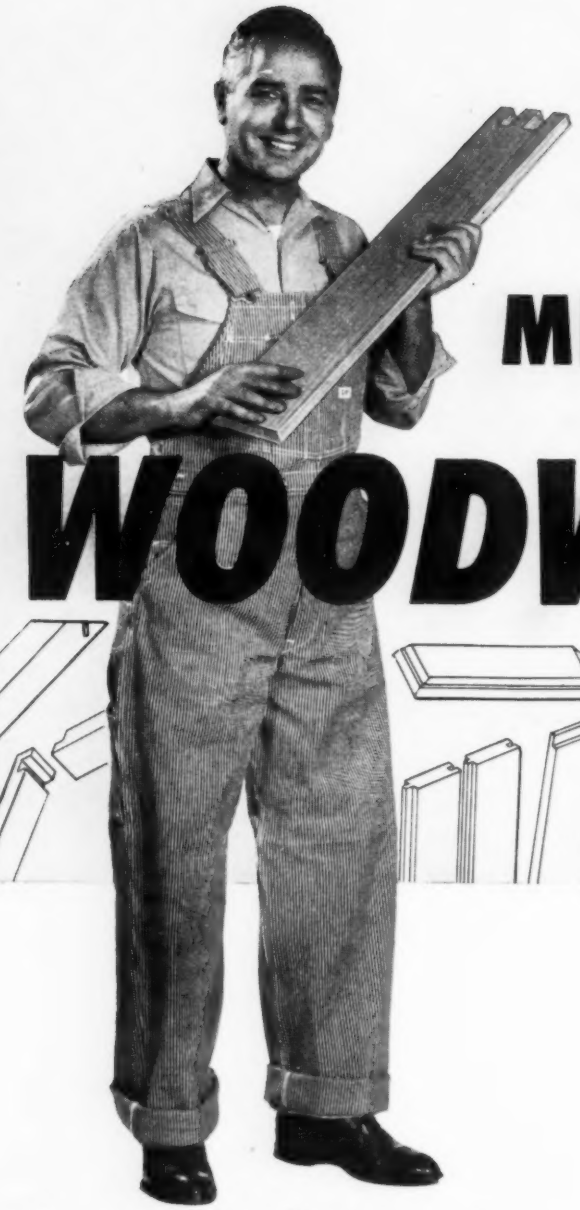
*Globe double end trim saw feeds to Mereen-Johnson end trim saw.*

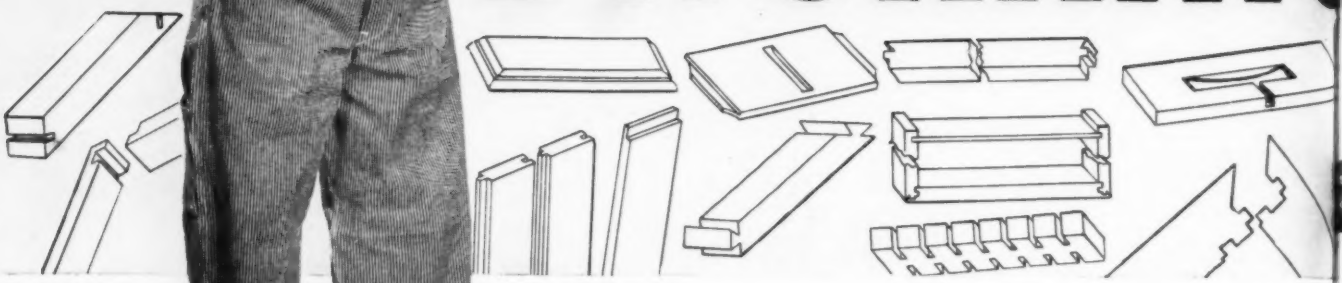


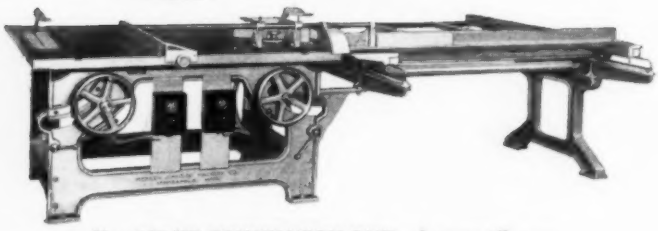
*The surfaces are smoothed on a Yates-American sander.*

Experimentation is pointing the way to undreamed of uses for shaving board. Mr. Molloy, in predicting its future acceptance by the woodworking industry, declared: "The field should be an expanding one over the long pull, although there may be short-term fluctuations. Some types of particle board may supplant plywood in certain applications, but each has its own special function."

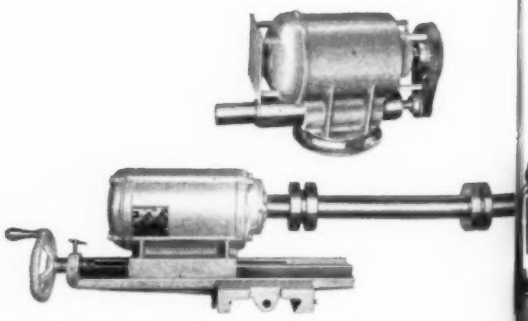
# 10 ways to cut costs with MEREEN-JOHNSON WOODWORKING



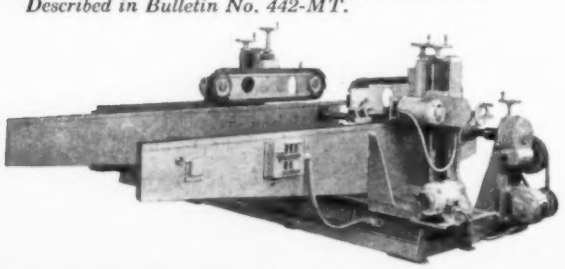




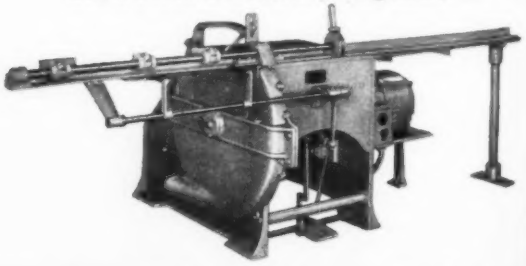
**No. 442-MT COMBINATION SAW**—A versatile machine for ripping, cross-cutting, grooving, dadoing, beveling and mitering. Cuts up to 48″ wide and rips up to 50″ wide. Handles large stock easily. *Described in Bulletin No. 442-MT.*



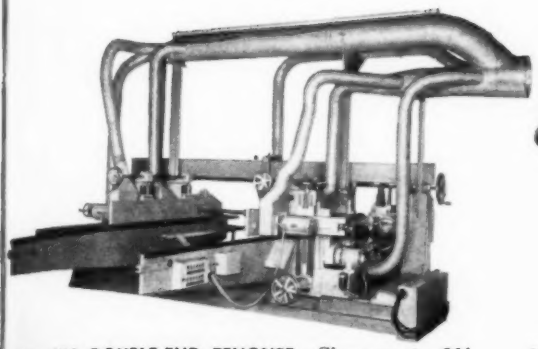
**SAW MOTORS**—Motors for special applications 3600 RPM or patented offset high speed spindle as illustrated. Unusual shaft extensions open or TEFC 1 to 25 HP. Also mounting slides, etc.



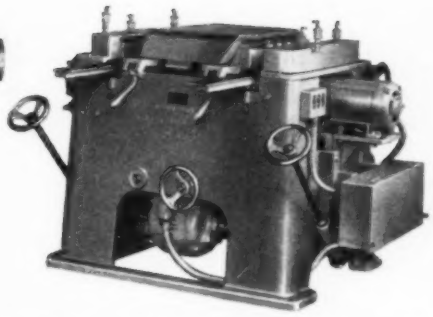
**No. 600 DOUBLE CUT-OFF SAW**—Accurate production at high rates of feed. Labor saving attachments such as cope motors, dado arbors and other equipment are available for specific needs. Larger sizes available. *Described in Bulletin No. 600.*



**No. 477 CUT-OFF SAW**—Capacity equals two or three swing, straight line or roller carriage cut-off saws—depending on type and condition of stock used. An excellent machine for box work. *Described in Bulletin No. 477.*

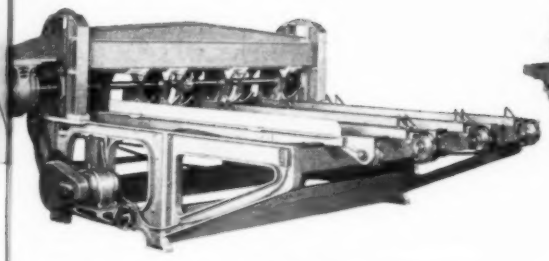


**No. 400 DOUBLE-END TENONER**—Sizes up to 20' to fit your requirements. Will square-cut up to 96" ahead of trim saws. Numerous accessories to multiply its usefulness. *Described in Bulletin No. 400.*

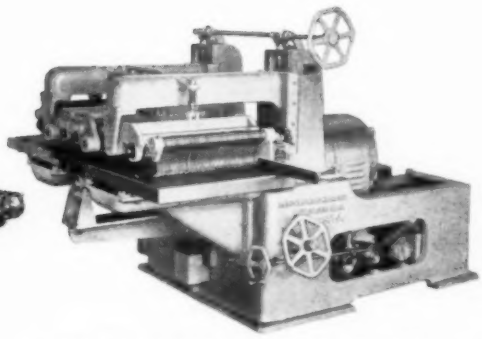


**No. 326 MATCHER-JOINTER**—For sash and door, furniture and box factories—as well as for many special uses. Adaptable for jointing hogshead staves. Unequalled for "T" and "G" work. *Described in Bulletin 326.*

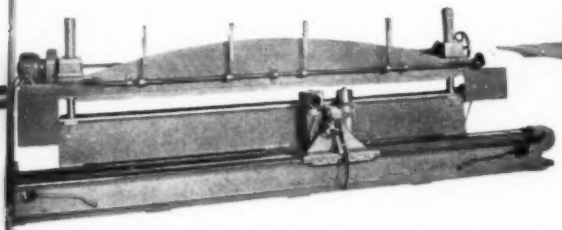
# MACHINES



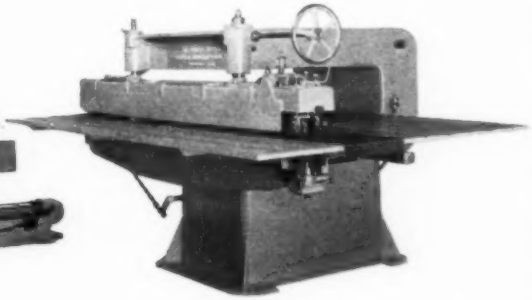
**No. 435-H MULTIPLE CUT-OFF SAW**—Cuts long boards into short pieces . . . will square cut large size sheets . . . and will cut any number of grooves. Excellent for sizing plywood. *Described in Bulletin No. 435-H.*



**No. 441-A GANG RIP SAW**—For fast production on difficult gang ripping jobs. Eight power driven feed rolls...12", 19", or 24" saw space. Up to 150 HP. Variable feed drive up to 300 ft. per minute. Glue joint accuracy. *Described in Bulletin No. 441-A.*



**VENEER JOINTER**—Traveling head principle eliminates shifting. Perfectly joints bundles of veneer up to four inches thick. Sizes from 90" to 212". *Described in Jointer Bulletin.*



**VENEER SPLICER**—Makes precision tapeless joints. Adjusts automatically for varying thickness of veneer normally fed through machine. Welded steel frame with 49" throat clearance at right. *Described in Bulletin No. 50.*

BULLETIN 400

BULLETIN 326

BULLETIN 435-H

BULLETIN 441-A

BULLETIN 442-MT

JOINTER BULLETIN

BULLETIN 50

BULLETIN 600

BULLETIN 477

RESAW BULLETIN

*Write for illustrated bulletins*

## *Mereen-Johnson* MACHINE CO.

4401 LYNDALE AVENUE NORTH • MINNEAPOLIS 12, MINNESOTA

Name_____

Address_____

City_____ State_____

Firm_____

WOOD is naturally
BEST for BOATS
WOOD BOATS are the JEWELS of the WATER
Supreme in Beauty and Brawn
★ Wood boats have natural beauty
★ Wood boats have natural buoyancy
★ Wood boats have natural soundproofing
★ Wood boats have natural freedom from vibration
★ Wood boats have natural stamina—won't "fatigue"
★ Wood boats have natural prestige and tradition
NATURALLY the BEST BOATS are WOOD!

# WOOD Is Naturally

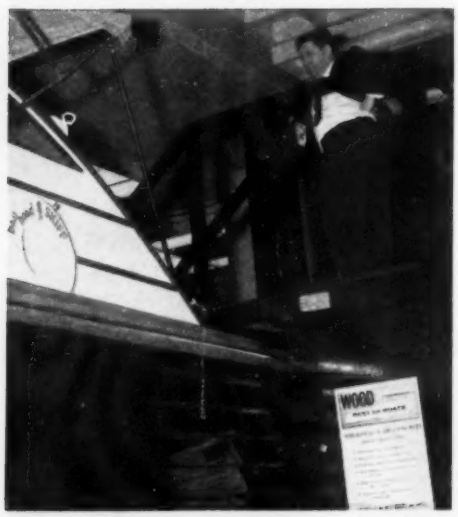
*FOREWORD*

*Last year Nelson Nash visited the Motor Boat Show in New York City and Hitchcock's WOOD WORKING published his report in April, 1958—"Battle for the Waves."*

*In his article, Mr. Nash expressed grave concern over the fact that manufacturers of wood boats—unlike manufacturers of other type boats—did not stress enough the natural advantages of wood for boating. Mr. Nash listed a number of positive reasons for choosing wood as a basic construction material for boats.*

*He also suggested in his article that wood boat manufacturers organize an association in self-defense.*

*Last year's article stirred up considerable reader reaction and interest. Therefore, we asked Mr. Nash to visit the 1959 Motor Boat Show and find out what, if any, progress has been made in the promotion of wood boats. Here is his report.*



DEAR BOSS:

The 49th annual Motor Boat Show arrived at New York's Coliseum accompanied by icy blasts and the worst howling hailstorm of the season. Despite the 14° deep-freeze, thousands were lined up outside the doors of the Coliseum and it took extra crews of ticket sellers working at a furious pace more than two hours to break the line of frozen standees.

However, as soon as I entered the exhibition halls, I immediately felt a warm glow. There, staring me in the face were numerous 16" x 24" posters proclaiming "WOOD IS *NATURALLY* BEST FOR BOATS."

The wording was almost identical with that of my last year's report. A number of wood boat manufacturers who recognized me by my white pipe rushed

*Poster at top of page was displayed at the show, and caused considerable comment. Famous names, seen in the other two pictures, such as Chris-Craft and Bay Head Skiff proudly displayed this "WOOD Is Naturally Best for Boats" poster.*

# Best For Boats!

By
Nelson Nash

over and thanked me profusely for these posters. "Just what we needed!"

There was no identifying mark on these posters, and I tried to tell my fan club that I was not responsible for them. But they just winked and told me not to be so modest.

But where did these posters come from? Nobody seemed to know for sure. It took me almost a week to track them down.

The real credit belongs to the Fine Hardwood Association, 666 Lake Shore Drive, Chicago, Illinois, who went to considerable trouble preparing these posters as well as a complete promotional kit whose purpose is to develop a solid front among boat manufacturers against invading substitute materials. On one hand, Mr. E. Howard Gatewood, executive vice-president of F.H.A. will not be happy that I received so much thanks. However, on the other hand, Mr. Gatewood will be delighted to learn that these posters carried real weight during the show.

One of my first ports of call was at the space of Penn Yan Boat Co., Penn Yan, N.Y., one of the oldest wood boat manufacturers in the country.

You will remember that during last year's show, Mr. R. J. Buckley, vice-president granted me a lengthy interview. In addition, he helped us answer many letters all during the year. "Admiral" Buckley is one of those far-sighted men who is keenly aware that the future of the wood boat industry depends on what the wood boat manufacturers will do now.

I wanted to thank him on behalf of *Hitchcock's WOOD WORKING* for all his time, trouble, and expense . . . but he interruped me.

"Nonsense!" he said. "It is we who should thank *Hitchcock's WOOD WORKING* for pushing the alarm button! Good thing too. Since your article appeared last year we've done a great deal of soul-searching. We realize now where we made our mistake. Wood boat manufacturers always took it for granted that people knew all about wood and we never stressed wood's positive and superior points."

Then he proudly showed me Penn Yan's new 1959 catalogue. On page 2 was an effective, graphic presentation of the advantages of wood for boat building.

Because these advantages cannot be emphasized too often and too strongly I shall once again enumerate them briefly.

Only boats built mostly of wood can be truly satisfactory, because only wood possesses the characteristics of lightness, stiffness, resilience, natural buoyancy, quietness, ease of repair, pleasantness to touch and beauty of appearance.

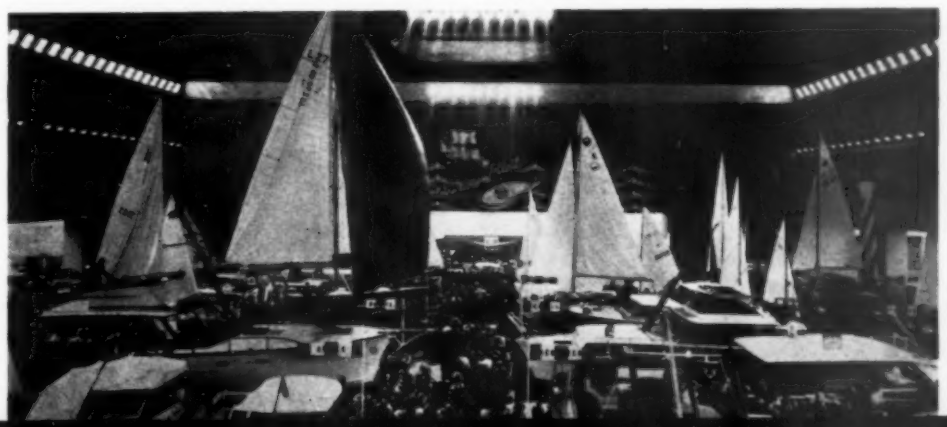
The hull of a boat has to act as frame, running gear, skid, bumper and body, and it has to withstand the elements, vibration, pounding, twisting, abrasion and mild collisions. At the same time it must remain watertight.

Wood, on a strength-to-weight basis, is one of the strongest materials known to man, having a specific strength over three times that of steel.

Mr. Buckley further pointed out that wood boat manufacturers are continually striving to live up to your recent editorial, Boss, "Is The Buyer Satisfied?" (HWW, Jan. '59). In that same issue there is also a full and detailed description of new and improved gluing techniques for making boats permanently watertight (pg. 88).

I asked, "Please tell me, Mr. Buckley, it is true that boats made from other materials are free from maintenance problems?"

The "Admiral" became sarcastic, "I'm surprised at you, Nash, for repeating such utter rubbish. I don't know where people ever got such an idea. There is



*Recreational boats of all kinds dropped anchor in the New York Coliseum for the 49th annual Boat Show. More than 415,000 people saw some 480 boats during the 10-day exposition. In 1958, more than two billion dollars were spent on pleasure boating at the retail level.*

*This 17' molded plywood sailboat is obtainable assembled or in kit form from Douglass & McLeod, Painesville, Ohio. Sail area is 175 square feet.*

absolutely no such thing as a completely maintenance-free boat, regardless of the materials used, if the craft is given normal wear and tear. Go around and ask. No responsible manufacturer will make such extravagant claims."

While visiting the space of Rex Marine Center, South Norwalk, Conn., area distributor of the famous Chris-Craft line, I noticed that Chris-Craft had *completely discontinued their plastic boats.* This is a fact worth noting and recording.

There I met Henry M. Devereux, naval architect for the Minneford Yacht Yard, Inc., City Island, N.Y. He was earnestly studying the "WOOD" poster.

I asked him, "Well, what do you say?"

"Most interesting," he replied. "Makes one think."

After a little while he added, "There is something else that could be mentioned in favor of wood. I don't really like to talk about it, but it is a fact that accidents do occur. Although it is not difficult to learn navigation of small boats, few people take the trouble to do so. They become a hazard to themselves and to others. Every week-end during the summer many boats are towed into our yard because of minor collisions. Wooden boats can be easily and quickly repaired, and boat owners can still enjoy the comparatively short summer season, especially in northern regions."

*Our readers would be much more inclined to buy one of these house boats from River Queen Boat Works, Inc., Gary, Indiana, if the deck chairs were made of wood. Anyway, though the hull is steel, the superstructure is of marine plywood and the craft can be powered by inboard or outboard engines.*

There is no greater torture for a boat owner than to have his craft laid up for a long period of time. According to Mr. Devereux' remarks, wood boats have their own built-in accident insurance.

Then Mr. Devereux continued, "If you really want to do something, Nash, about improving the lot of wood boat manufacturers and repairs, you ought to mention in your report that the lumber manufacturers are not doing a good job drying white oak for use in boat building. I don't know why this should be. In general, I think, there should be better liaison between lumber manufacturers, woodworkers, and boat builders."

(Let's see, Boss, how many letters we'll get from some of our lumber manufacturing readers offering properly dried white oak.)

The entire lumber industry has an enormus stake in boating. Table I shows some comparative, staggering statistics, attesting to the fabulous growth of pleasure boating in 1958, which was considered a year of economic recession.

The question arises, is boating a passing fancy? Does it appeal only to the rich? Table II of who buys boats is at once revealing and astonishing.

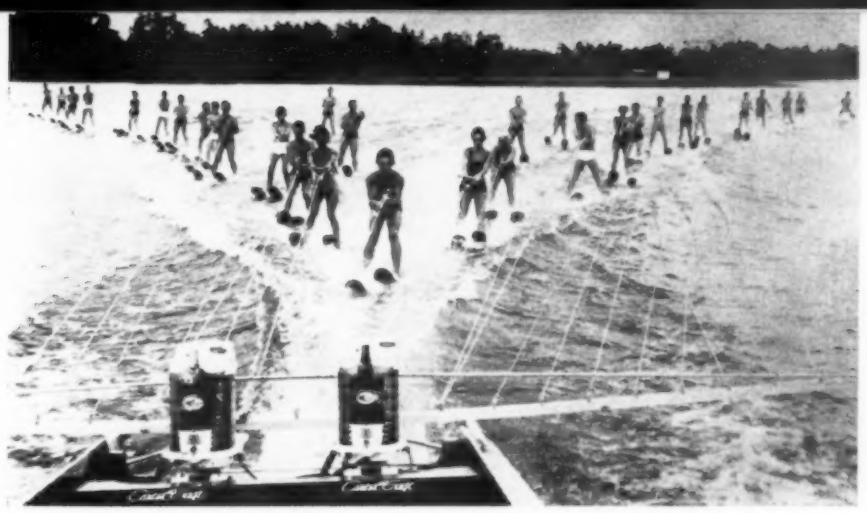
It is note and newsworthy that some of the more industrialized states which were hit harder by the 1958 recession did not match their 1957 sales figures. However, this is understandable in the light of our "Occupations" table. Where skilled workers were laid off, sales dropped.

If 1959 is the boom year everyone expects it to be and the skilled workers return to their benches, next year's figures should leave us breathless.

The important thing for our industry is not to scuttle wood—which is self-buoyant and will always pop up—even in such unlikely and almost unadvertised places as in plastic boats, for trim, mahogany rudders, oak tillers and hiking sticks, spruce wishbone beams and spars, etc.

It is interesting, illuminating, intriguing and highly significant that Crosby Aeromarine Co., Grabill, Ind., (a division of Archer-Daniels-Midland Co.) manufacturers "fiberglass craft with balsa wood laminated in the deck for extra strength and flotation."

Furthermore, on the last page of their promotional brochure they state: "The bottom of every Crosby hull consists of at least five layers of top quality fiberglass . . . and an insert of balsa and hardwood for extra strength and flotation . . . This buildup has impact strength several times greater than metal, yet weighs less."



*Thirty-one (count them) skiers whiz along behind a single boat with two engines. That's a lot of selected ash lumber water skis.*

TABLE I

| *Growth of Boating* | *1957* | *1958* |
|---|---|---|
| Persons estimated to have taken part in recreational boating more than only once or twice. | 34,000,000 | 37,000,000 |
| Recreational boats in use. | 6,954,000 | 7,333,000 |
| Retail expenditure on pleasure boating. | $1,912,000,000 | $2,085,000,000 |
| Square feet of sheet plywood used: | | |
| Fir | 124,000,000 | 142,000,000 |
| Other hardwood plywood | 25,000,000 | 29,000,000 |
| (No figures are available on how much solid lumber was used for pleasure boats.) | | |
| Motor unit sales (outboard). | 550,000 | 545,000 |
| Outboard motors in use. | 5,140,000 | 5,525,000 |
| Outboard boats sold. | 320,000 | 316,000 |
| Boat trailers sold. | 165,000 | 169,000 |

***(All statistical information taken from the joint report of the National Association of Engine & Boat Manufacturers and Outboard Boating Club of America.)***

TABLE II

*Occupations of Outboard Motor Purchasers 12-months ended April 1, 1958*

| | % Employed* Buyers | % Employed Population |
|---|---|---|
| Professional | 13.2 | 7.4 |
| Managers, Proprietors | 12.8 | 10.8 |
| Clerical, Sales | 16.6 | 13.0 |
| Skilled Workers | 32.0 | 18.8 |
| Semi-Skilled | 13.9 | 20.2 |
| Farmers, Farm Labor | 4.0 | 15.4 |
| Protective Service | 5.2 | |
| Other Service Workers | 1.4 | 5.9 |
| Factory Labor | 0.9 | 8.3 |
| | 100.0% | 100.0% |

*In addition, the equivalent of 7.0% of the total sales were made to retired persons, students, etc.

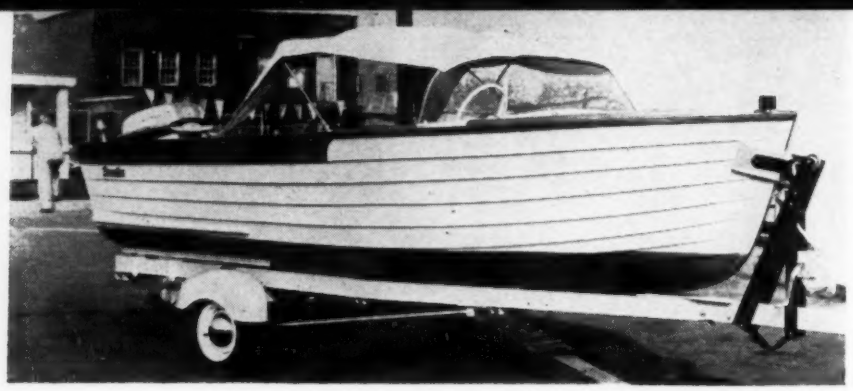
Crosby's designers are apparently convinced that their construction is superior to other all-plastic hulls.

Could it be that Crosby knows something other plastic boat manufacturers will not openly admit? Could it be that plastic hulls as marketed today could stand a lot of improvement—such as wooden re-inforcements?

Now, if there were a Wood Boat Manufacturers Association, the members could make this their number one project.

Almost overlooked by the daily press was an item that should interest all our readers greatly—water

*Everyone is welcome on this 28 foot cruiser made by Owens Yacht Co., Inc., Baltimore, Md. With sleeping capacity of five persons, this interior view looking aft shows the galley area with mahogany paneling and the teak deck.*



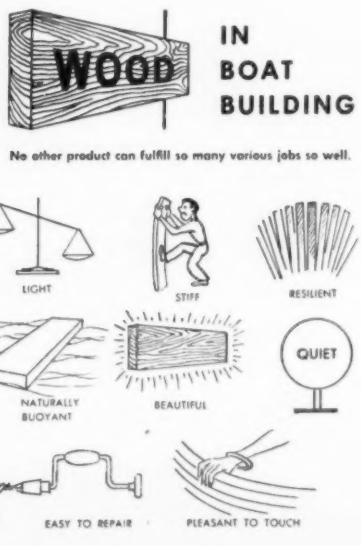
*Wooden lap-strake boats made positive headway. This runabout, manufactured by Penn Yan Boats, Inc., Penn Yan, N.Y. can take up to 65 h.p. Incidentally, 169,000 trailers were sold last year. Boat owners now reach the seven seas by super turnpike.*

TABLE III
*State Distribution of Outboard Motors*
*15 Leading States*

| State | Estimated Unit Sales 1957 | Estimated Unit Sales 1958 | Estimated Motors in use Dec. 31, 1958 |
|---|---|---|---|
| New York | 50,200 | 50,300 | 514,000 |
| Michigan | 38,000 | 32,100 | 407,000 |
| California | 36,700 | 37,300 | 357,000 |
| Illinois | 32,200 | 29,500 | 332,000 |
| Ohio | 27,400 | 25,700 | 305,000 |
| Texas | 27,800 | 28,100 | 295,000 |
| Florida | 24,500 | 26,300 | 261,000 |
| Minnesota | 25,800 | 20,900 | 245,000 |
| Wisconsin | 22,400 | 21,400 | 211,000 |
| Washington | 18,300 | 18,700 | 183,000 |
| Pennsylvania | 19,500 | 16,700 | 182,000 |
| New Jersey | 16,600 | 16,500 | 169,000 |
| Indiana | 15,500 | 13,100 | 160,000 |
| Missouri | 13,500 | 15,700 | 139,000 |
| Tennessee | 10,600 | 10,500 | 101,000 |

TABLE IV

| *Literature* | *Publisher* |
|---|---|
| Motorboat Safety (U.S. Coast Guard) | U.S. Government Printing Office 1957 0-425877 Washington, D.C. |
| Family Boating is Fun and More Fun on the Water | National Association of Engine & Boat Manufacturers, Inc. 420 Lexington Ave., New York 17, N.Y. |
| Pleasure Craft (Highlights of Federal Boating Act of 1958, Minimum Legal Requirements, Suggestions for Safety) | U.S. Coast Guard Treasure Dept. CG-290, revised Jan. 2, 1959, Washington, D.C. |




*This page from the illustrated catalog by Penn Yan Boats, tells why wood is best for boats.*

skiing. From an obscure beginning in France during the early 1920's, water skiing has become one of the fastest growing American recreations. To our readers is means millions of feet of ash lumber.

TABLE V

| | 1958 | 1959 | Increase % |
|---|---|---|---|
| Attendance | 390,000 | 415,000 | 7% |
| Sales | $22,000,000 | $26,700,000 | 20% |

TABLE VI
*Types of Boats Shown*

| Type | 1958 | 1959 |
|---|---|---|
| Plastic | 95 | 166 |
| Aluminum | 82 | 67 |
| Rubber-Canvas | — | 11 |
| Steel | 4 | 4 |
| Total: | 181 | 248 |
| Wooden Boats | 274 | 233 |
| GRAND TOTAL: | 455 | 248 |

| | |
|---|---|
| Wood lap strake boats | 101 |
| Sheet plywood | 73 |
| Smooth wood plank | 37 |
| Molded plywood | 22 |
| TOTAL WOOD BOATS SHOWN | 233 |

The American Water Ski Association reports that novices can actually water ski during their first lesson. The whole family can enjoy it, including children of 6 and 7 and people in their 60's and 70's of average physical ability and co-ordination.

It will take me almost a whole year to read the ton of literature, booklets, and brochures which I managed to pick up at the show. I've added another table to list a few titles which I believe our readers will enjoy and find useful and for which there was no charge.

Once again this year, all attendance records and sales records were broken. Table V shows the actual figures.

From the figures shown in Table VI( it is obvious that fiber glass has shown great strength at this show. However, wood, too, has gained tremendously in one category, namely in wood lapstrake boat construction.

Despite these impressive figures, there is no room for complacency for manufacturers of wooden boats.

The storm signals are hoisted. Now, the rest is up to the manufacturers of wooden boats.

Nautically yours,

*N. Nash*

IVAN V. ANDERSON

DONALD J. LINNELL

RUSSELL SOULE

JOHN M. COLLINS

ROBERT H. LOWETH

C. JEROME UNDERWOOD

PHILLIP LATASA

ROGER W. BUSHNELL

TED MIKELS

BERNARD J. McHUGH

JAMES W. SUDDABY

ARTHUR S. KELLY

CHARLES M. CURTISS

## DEPENDABILITY ASSURES *Your* PROFITS

the wood you want, when you want it, in the quantities you want, through

# *Your Atlantic Man*

who knows your manufacturing problems and specifications. He is trained in hardwoods and the resources of the Company behind him and its vast band mill operations in Erwin and Knoxville, Tenn.; Columbia, S. C.; Madisonville and Winchester, Ky.; Buena Vista, Va.; Berlin, N. H.; and Megantic, Que. He is in close daily contact with his "Headquarters for Hardwoods" in Boston, Buffalo and Charlotte. He represents that priceless ingredient of confidence, challenge and responsibility that is ours to preserve.

Your Atlantic Man is at your command throughout the United States and Canada ready and anxious to serve you.

*The*
**ATLANTIC**
*Lumber Company*

88 Broad Street, Boston 4, Mass.
1055 Seneca Street, Buffalo 10, N. Y.
1114 Johnston Bldg., Charlotte, N. C.

*First in a series*

*Completeness* at Southern Screw starts with the placing of your order and continues through the shipment of your screws on free disposable pallets. Whether your screws are supplied from Southern Screw's 1,500,000,000-piece stock or manufactured to your specifications, customers know that Southern Screw's *completeness* includes the consistent quality and service they have a right to expect.

Let Southern demonstrate what *completeness* means on your next fastener requirement.

IN FASTENERS SOUTHERN IS

# COMPLETENESS

Wood Screws • Tapping Screws • Machine Screws & Nuts • Stove Bolts • Carriage Bolts • Dowel Screws • Hanger Bolts • Drive Screws

Manufacturing and Main Stock in Statesville, North Carolina

Warehouses: New York • Chicago • Dallas • Los Angeles

# around the shop

This monthly feature answers readers' questions on common shop problems. If you wish to present a problem, or desire further discussion of problems discussed here, write to the Editor.

## What Type Mortiser?

*We use the chain mortiser for mortising sash and door stock. Although this is a relatively new machine, we are having trouble with chip clogging, crooked mortises and excessive chain breakage. Assuming that the machine itself is in good condition, what is causing these difficulties?*

In the absence of more specific information, a check of the following factors may disclose the source of your troubles. Clogging of the chain saw teeth is usually caused by running teeth with too thin an edge and too much hook which clogs easily. This tooth condition is generally created by grinding the gullets too deep. Running this type of chain for any prolonged period can result in chain breakage from strain set up by labored cutting. The teeth are weakened by the excessive grinding and cannot cut freely when clogged.

There are several causes of crooked mortises. Improper grinding of the chain is quite common Where teeth are not ground perfectly square across, the teeth will be longer on one side of the chain than on the other and mortises made will be crooked. Wear in the chain bar and other operating parts can cause the chain to lead to one side or the other and cut a crooked mortise. Badly worn chain will flop and mis-cut. Crooked mortises have also been traced to excessive end play in the chain-sprocket shaft or a sprung chain-bar. If excessive pressure is applied to the clamp, the fence may be sprung out of line to cause crooked mortises. In some cases crooked mortises were found to be due to inserting new teeth in an old chain and neglecting to grind them back to correspond to the original teeth of the chain.

All of the conditions described can contribute to chain breakage. Many chains have their working life shortened because they are run too tight. Lack of proper chain lubrication is another contributing factor.

## Is Special Method Needed?

*I am having trouble getting the proper projection on the thin knives mounted in our planer's round cutterhead. Until we got this machine, I had always operated machines with square cutterheads. Is there a special method for setting knives in round cutterheads?*

It is customary to set these cutterhead knives to project about 1/16" in the conventional manner or to extend the base of the bevel 1/64" or 1/32" beyond the round part of the cutterhead, using a 30° bevel on the knives. One experienced operator said he did not go by the projection on the underside of the knives, as there is always a variation in clamp block depth or chipbreaker below the round cutterhead periphery, but made accurate adjustment by projecting the knives on the back the desired amount beyond the periphery of the head.

## How to Use Speednuts

*We manufacture a popular price line of knock-down furniture featuring a bolted construction for easy assembly. One of our good customers has suggested that our construction would be improved and various economies might result from the use of Speednut fasteners. Will you explain the principle of operation of these fasteners and their application?*

These fasteners operate on a double locking spring tension principle and in many applications are self-retaining, holding themselves in screw receiving positions, without requiring clinching, riveting, or auxiliary fastening devices. Essentially they consist of a piece of flat steel fabricated with a base arch in which thread-engaging prongs have been sheared and helically formed. When the screw is tightened, the base arch flattens to provide an arched spring lock while the prongs are forced into the thread root to lock.

Applications reported for furniture assembly purposes included positioning in hidden locations or blind holes to eliminate protruding nuts were used to make straight heads and blemishes. The Speedwood attachments for metal to wood assemblies and combinations

of plastic materials and wood. They were used for various types of furniture of the knock-down variety. Users reported a high tensile strength and excellent shock and vibration resistance.

### How Does Feed Operate?

*A recent visitor to England was very enthusiastic about a three drum bed sander equipped with a variable feed V-belt drive which, he said, provided instant speed variation. Can you tell us how this feed mechanism operates?*

Our British correspondent believes he has found the machine to which you make reference. The variable feed drive mechanism used on this sander consists of an expanding V-belt pulley unit operated from a control handwheel at the infeed end of the machine. It provides quick speed variation from 14 to 28 f.p.m. The feed drive is arranged from a separate motor inside the machine frame and final reduction to the feed driving unit is through an enclosed worm and worm drive.

TO PUT more sales appeal into your tables at lower cost and with fewer production headaches, use Wabash Hardwood Slides.

Carefully built, these Hardwood Slides are as good as the best . . . yet often are priced lower. They are quiet and smooth in operation. Tongues are shaped to put a crown in the slide when it is extended . . . to prevent sag!

**FREE ENGINEERING SERVICE**

Planning new tables? Send construction specifications to us. We'll plan extensions for greatest economy at no cost to you.

And for your non-dividing base tables, use Wabash Equalizer Slides for greatest sales appeal.

*Walter of Wabash*

**B. WALTER & CO., Inc., WABASH, INDIANA**

SLIDES • HARDWARE • DROP LEAF SUPPORTS


### Spotty Finish

*We have just received complaints from a furniture customer that our plywood shows a spotty finish. We can't understand this as the plywood components or fabricating process have not been changed in any way and a visit to the customer's plant showed no change in their finishing materials or finishing procedure. The only thing which we can put our finger on that is different is the use of a caul releasing agent to prevent the plywood from sticking to the cauls in the hot pressing operation. Could this be the source of our trouble?*

Since you do not describe the caul releasing material used, it is difficult to determine whether this material is contributing to your plywood defect. Investigation of other plywood operations, however, did disclose a similar condition which was found to be caused by the use of a glue-repellent material on the cauls in the glue room. When the plywood was hot-pressed, a deposit was left by this material which was practically invisible. The finishing material supplier analyzed this material and found that the chemical used in its formulation was not compatible with the ingredients of the finishing material and produced spots in the final finish film. A similar analysis of your caul releasing material might disclose the same condition.

### Can Sealer Solve This?

*We manufacture prefabricated constructions for exterior use from Douglas fir plywood, painting them before shipment so that only erection is required at the site. There has been some trouble with paint checking and grain showing through the paint with our current paint system. A paint salesman has suggested that these deficiencies could be remedied by the use of a resin sealer in place of the regular primer coat. What can you tell us about this sealer application?*

Your problem was referred to an authority on Douglas fir constructions and treatment, who informs us that exhaustive tests made of resin sealer treatments by his organization showed little improvement of check resistance and

a lower grain hiding power than the conventional primer coat. He suggested a better base is provided by a prime coat of high grade aluminum paint, made of 1¾ lbs. aluminum paste in 1 gallon of long-oil vehicle, which also gave good results when used in a 3-coat paint system.

### Mortise With Variety Saw

*Ours is a small custom shop with limited equipment. A recent order requires the cutting of hinge seats on solid wood doors. I know that this is a job for a hinge-seat mortiser, but not having this machine, can a satisfactory job be done with a dado head on our variety saw?*

The job is best done, as you say, at a special hinge-seat mortiser. If quality requirements are not too exacting, the hinge seats can be cut with dado saws mounted on the arbor of your variety saw. There is danger of some tearing or splintering even though the hinge will conceal most of the cut. It is best to dado through from face to face of the door jamb.

### Volatile Oils as By-Product

*We cut only coniferous species, pine, spruce, hemlock, and some cedar. A recent visitor from Canada informs us that some firms are producing volatile oils from similar foliage as a by-product. How is this done and is it profitable?*

A Canadian correspondent advises that volatile or essential oils are being produced in Canada on a relatively small scale but do not currently have a profit potential to warrant investment in facilities required for a major industry operation. The foliage is arranged in layers and steam is blown through it to evaporate the volatile substances, commonly associated with the distinguishing plant odor. The oil-saturated steam is then condensed and the condensate is processed to separate and remove the water-insoluble oils. The most popular oils are cedar leaf, hemlock, pine needle and spruce needle oils. The average price brought by these oils in the market is said to range between $2.00 and $3.00 per pound. Yield estimate varied 0.5% to 0.10% per weight of green foliage.

### What Machine Is Best?

*My small millwork business has developed to a point where I am now called upon to make chairs, furniture and cabinets in addition to general millwork items. I need a machine to cut mortises, but am puzzled as to what type is best suited for my operation. Can you advise me on this?*

The mortise can be cut in several different ways, depending upon design of mating members, production requirements and labor and material economies. The hollow chisel mortiser is most used in the furniture industry because furniture components are small when compared to the usual products of the millwork plant. Essentially, the chisel is a sharp, rectangular tool which carries within its body a boring bit that operates to remove chips cut loose from the stock by the chisel and ejects it from the mortise hole. The length of the mortise cut does not usually exceed

Each cutting edge hand-filed to cut your production costs. Stock items shipped in 24 hours.

**FOREST CITY BIT & TOOL CO.**

HICKORY • NORTH CAROLINA

SINCE 1890

*Proved in performance! Try our 24 hour service.*

**FOREST CITY**

SEND FOR FREE CATALOG

the width of the mortise of more than one and one-half times and most hollow chisel mortise cuts are perfectly square.

If the design of the construction parts requires a long, narrow slot, such as in the manufacture of sash and doors, a cutting tool must be used in the form of an endless chain traveling around a center support bar and driven by a sprocket wheel. This motor driven machine is the chain mortiser.

Depending upon size, the hollow chisel mortiser operates faster than chain mortising and provides the advantage of more intimate contact between the end of the tenon which projects into the mortise, in the final assembly and the bottom face of the mortise itself. Because the mortise chain cannot make perfectly square corners at the bottom, because its path must be guided around the end of its supporting bar by one or more rollers, the blind mortise itself has a distinct radius at the bottom so the mating tenon must be shaped to fit it. This leaves a space between the end of the tenon and the bottom of the mortise in a chain mortise joint. This is not objectionable if sufficient tenon surface is provided between the mating members to form a joint and the piece carrying the tenon has a shoulder larger than the mortise to serve as a dimension guide for the finished assembly.

If the mortise is long and narrow, and the part to be cut is not sufficiently deep, the bottom chain radius precludes the use of the chain mortiser. The oscillating bit mortiser is best suited for this type of work which uses a bit similar to that used on a router, attached to a head which reciprocates longitudinally to cut a long, narrow mortise. The mortise can be very accurately controlled with regards to depth and the bottom is square with its sides. Thus, as with the hollow chisel mortiser, the bottom of the mortise can serve as a guide dimension for the finished assembly, eliminating the need for a shoulder on the member carrying the tenon. The chief objection to the oscillating bit mortiser cut is that the mortise face is not rectangular but rather, shows some fibers in both mortise and tenon, if the tenon is left rectangular, or, requires additional preparation of the tenon to make it conform to the radius at each end of the mortise.

If you can only purchase one machine for mortising, the hollow chisel mortiser would seem to be the best all-purpose mortiser for you to use.

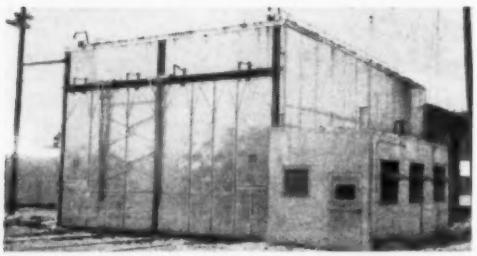
## Sticker Hardboard?

*What is the accepted target point for conditioning hardboard and should the board be stickered or bulk piled?*

Most hardboard plants condition hardboard, after hot pressing, to an approximate moisture content of 6 to 8%. It is usually done by placing the hardboard in stickered piles in an area where temperature and humidity can be controlled but sometimes is merely conditioned in the warehouse to existing atmospheric conditions. Controlled humidification is used where it is desired to speed up the conditioning process.

Should I
Buy Kilns?
What Size?
What Type?
What Cost?

STANDARD
solved all these problems for
CHAMA LUMBER COMPANY



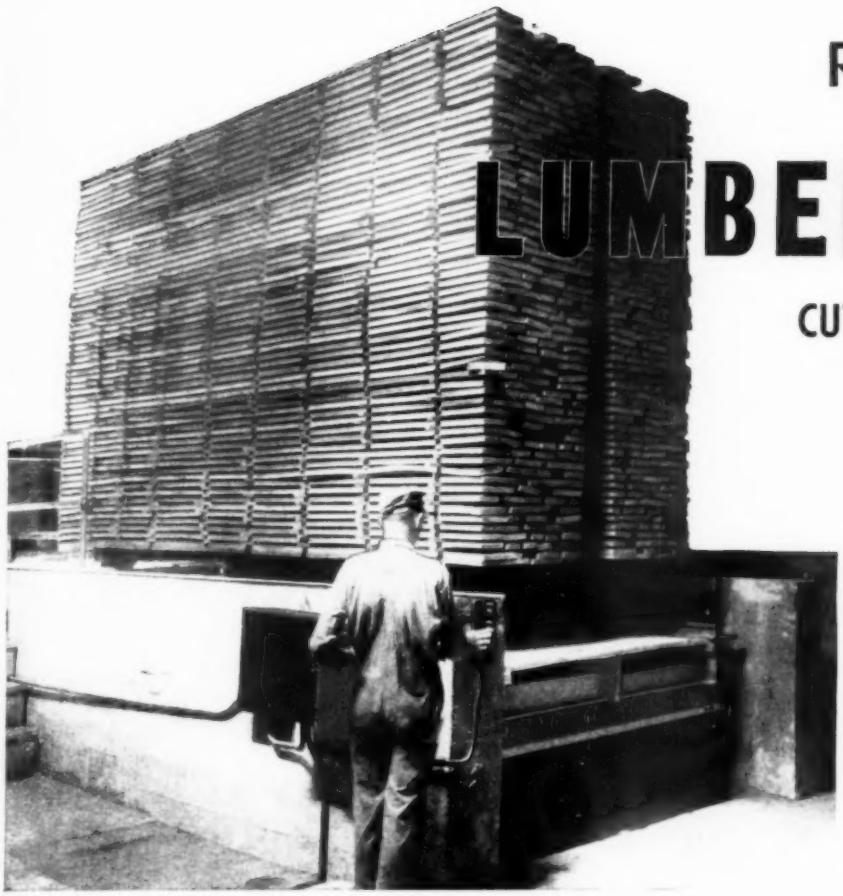
Our engineers made a thorough study of this Chama, New Mexico, firm's operations, and recommended that a gas-fired prefabricated kiln, shown at left, be installed. Used mainly to dry Engelmann's spruce, the kiln holds approximately 80,000 ft. of lumber. It's 29′ wide x 52′ long x 20′ high. There are doors at both ends and operating room at the side—all furnished by Standard.

We'll gladly provide your company with sound engineering advice at no obligation. Write for FREE Equipment Catalog and Prefab Kiln Brochure.

Manufacturers of Internal Fan Kilns
STANDARD DRY KILN COMPANY
Engineers and Manufacturers Since 1887
P. O. BOX 5708 · INDIANAPOLIS 21, INDIANA

STANDARD HAS THEM ALL
- Prefabricated Kilns
- Package Loaded Kilns
- Remodeled Kilns

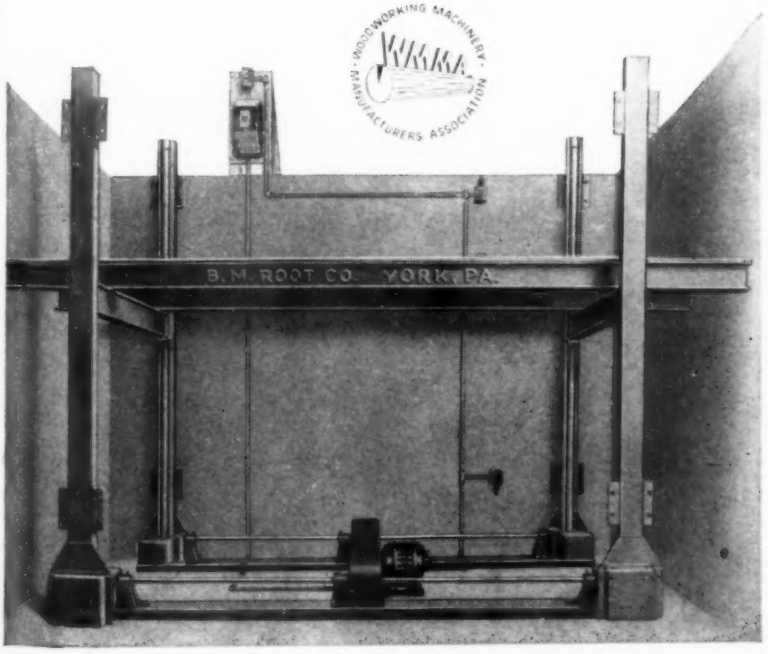
OTHER QUALITY STANDARD PRODUCTS
Lumber Stackers · Lumber Lifts
Dry Kiln Doors · Kiln Trucks
Transfer Cars · Moisture Registers

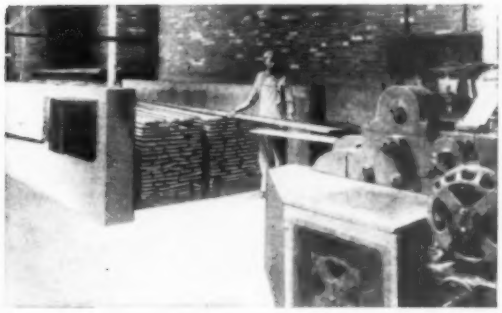


# ROOT LUMBER HOIST

## CUTS HANDLING COSTS 2 WAYS

**The Root Style "HA" hoist speeds handling of complete truck loads of lumber from level to level with the elimination of all hand labor. It also saves time and labor costs when kiln loads are handled at the cut-off saw, planer or rip saw by enabling quick intermittent adjustment of the load height, so that top boards are level with the machine bed. Thus one man alone can work a complete load efficiently and without fatigue.**



### ◀BETTER ENGINEERED

**Simplicity of design—maximum safety features—greatest lifting power with fewer working parts—positive 4-screw lift—ball bearing equipped—simple to install—easy to operate.**

**Write today for information on the complete line of Root hoists, boring machines and equipment for the woodworking industry. Agents in all major woodworking centers.**

# B. M. ROOT CO.

YORK — PENNA.

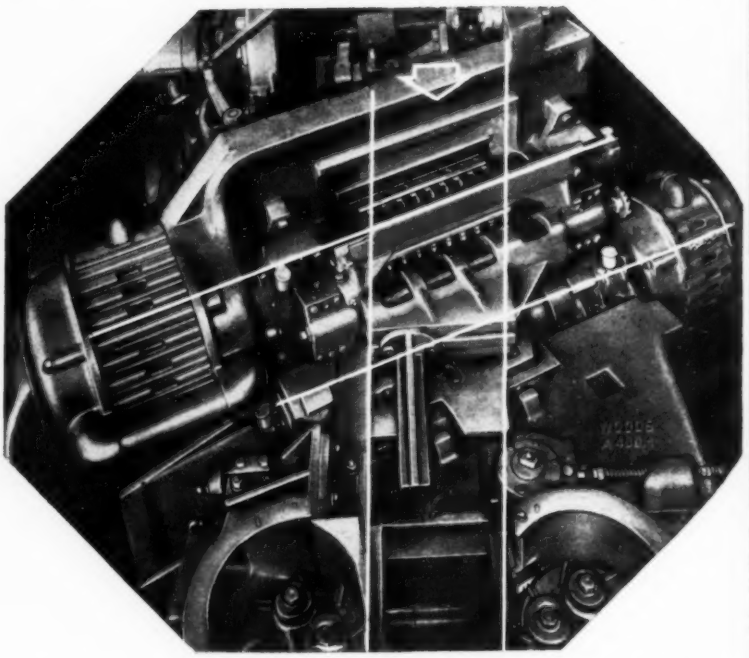
*Serving the Industry Since 1852*

# *It's Revolutionary!*

# A 480-M Series DIAGONAL PLANER and MATCHER

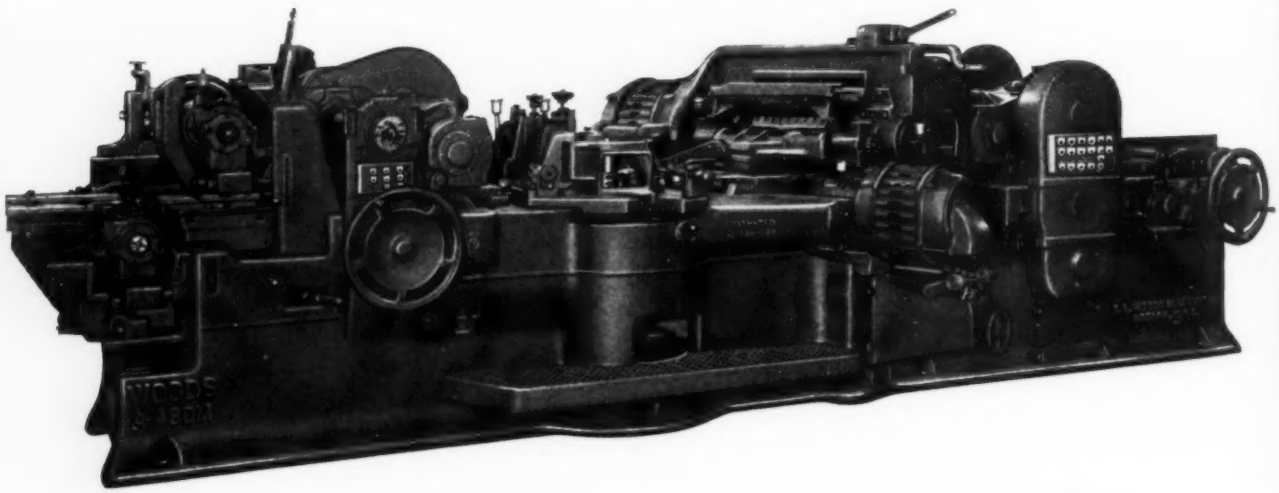
## *prevents*

## End-Sniping
## Torn Grain
## Loosening of Knots



The Top and Bottom Cutterhead Units are mounted diagonally to the main Guide of the machine, presenting a sheer cut to the stock under Top Cylinder and over Bottom Cylinder which eliminates sniped ends. It also gives a smoother finish around knots and cross grain. Less power is needed to feed the stock. Less lead is required in guide as angle cutterheads hold stock against guide fence.

Investigate now how this improved patented method of sizing lumber can improve your margin of profit on every hour's run. Write today for the A-480 M Series booklets.



## S. A. WOODS MACHINE CO.

27 DAMRELL STREET

BOSTON 27, MASS.

# Industry Leaders endorse WOODS Diagonal Planers!...

KILN DRIED PONDEROSA PINE

**NEW MEXICO Timber Co.**

DOUGLAS FIR · WHITE FIR · SPRUCE

POST OFFICE BOX 1730
ALBUQUERQUE, NEW MEXICO
December 10, 1958

S. A. Woods Machine Co.
27 Damrell Street
Boston 27, Massachusetts

Gentlemen:

We have been operating our #484-M Woods 10-knife matcher at speeds ranging from 300 to 400 feet per minute, and find its performance greatly exceeds our expectations.

The quality of the surfacing is equal to that of work done on a good moulder. There are no perceptible knife marks, no washboarding, no end sniping, no chipped grain around knots, and no gouging or tearing out knots.

At our Winslow, Arizona plant we are operating a conventional #414-M Woods matcher, which does very good work, but the smooth velvety appearance of the lumber processed by the #484-M gives the New Mexico lumber much better texture appearance, and has already created a customer preference for Bernalillo boards.

The operation of the diagonal cylinders keeps the lumber up against the guide, so there is no necessity of carrying any lead in the guide, no heavy tension on the feed rolls, and consequently there is no perceptible wear of either.

Much operating time is ordinarily lost on conventional cylinder machines, because of having to stop to clean out knots and broken pieces of lumber from under the chipbreakers and cylinders. The operation of the diagonal cylinders keeps all of this debris over on the guide side, where the lumber keeps it cleaned out of the machine.

We can recommend this matcher in every respect, and will be pleased to show it in operation to anyone interested.

Very truly yours,

NEW MEXICO TIMBER CO.
C. K. Wickens

C. K. Wickens
Vice President

**CAL-IDA LUMBER COMPANY**

A DIVISION OF J. G. BOISE COMPANY

*Manufacturers of Western Forest Products*

TELEPHONE TUrner 5-4933 · TELETYPE AUB CAL 153
P. O. BOX 733 · AUBURN, CALIFORNIA

December 31, 1958

S. A. Woods Machine Co.
27 Damrell Street
Boston, Mass.

Gentlemen:

We are pleased to write you as follows.

We have been operating our Woods A-480 M Diagonal planer and matcher for over two years. The results have been everything we expected. We are pleased with its performance, its maintenance and production volume. I consider the diagonal top and bottom heads as the top improvement to a planer, occurring in my lifetime.

From the fine work of the Woods diagonal planer, we are recognized as the best shipper of fine lumber products West of the Mississippi.

Yours very truly,

CAL-IDA LUMBER COMPANY

By Geo. R. Duff
Geo. R. Duff

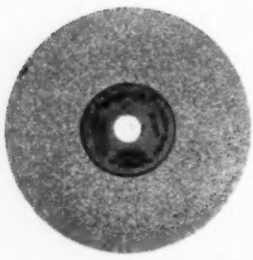
GRD:BW

MANUFACTURERS OF ALL TYPES SPECIALTY CUT STOCK · WINDOW AND DOOR TRIM · MOULDING AND BOX SHOOK

Write us today for more information about the new WOODS A-480M and A-484M DIAGONAL PLANER and MATCHERS of revolutionary design.

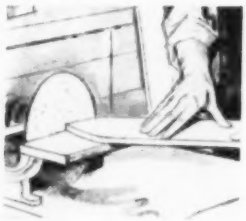
S. A. Woods Machine Company
27 Damrell Street
Boston 27, Mass.

# PERMA-GRIT* WHEEL saws and sands in one operation—without splintering



**SAFEST CUTTING WHEEL MADE**

No teeth to snag or pull. No kick-back.



### Wears like carbide-tipped blades

An amazing new wheel for table or radial saws. Thousands of cutting edges. It's actually 5 tools in 1! Saws, sands, shapes, dadoes and ploughs without changing the blade. With tungsten carbide grit permanently bonded on the edge and sides, it's the most versatile woodworking accessory ever made.

### Cuts laminates without "pull-outs"

Used with wood, veneers, compositions, plywood, plastics, it cuts *and sands* in one operation without chipping. Produces smooth finish on the thinnest material. Choose from 8″ dia. with $\frac{5}{8}$″ or $\frac{1}{2}$″ arbor hole or 10″ dia. with 1″, $\frac{3}{4}$″ or $\frac{5}{8}$″ arbor hole. Price: 8″ dia.—from $9.95; 10″ dia.—from $14.95. For special applications on problem materials, write Sales Manager, Perma-Grit Products Division, SKIL Corporation.

### PERMA-GRIT* SANDING DISCS

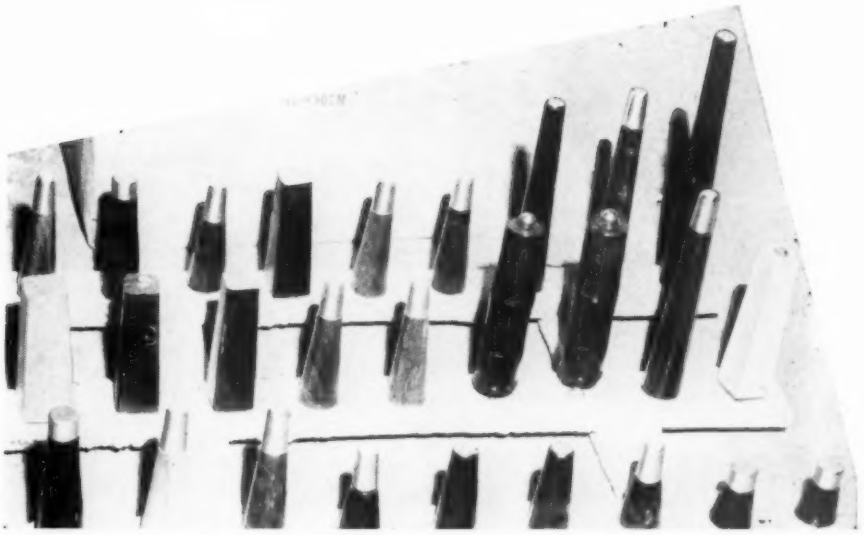
Outlast sandpaper 100 to 1. Eliminate frequent changing of worn-out sandpaper. Tungsten carbide grit conducts heat away from wood, reducing possibility of scorching. Available in 8″, 9″, 10″ and 12″ discs (coarse, medium-coarse, and medium grit). From $5.60.

*A Trade Mark of SKIL Corporation

SKIL

Made only by SKIL Corporation, manufacturer of famous SKIL and SKILSAW products,
5033 Elston Avenue, Chicago 30, Illinois. In Canada: 3601 Dundas St. W., Toronto 9, Ontario

# WOODEN LEGS . . . A Specialty Business



By Paul H. Graham

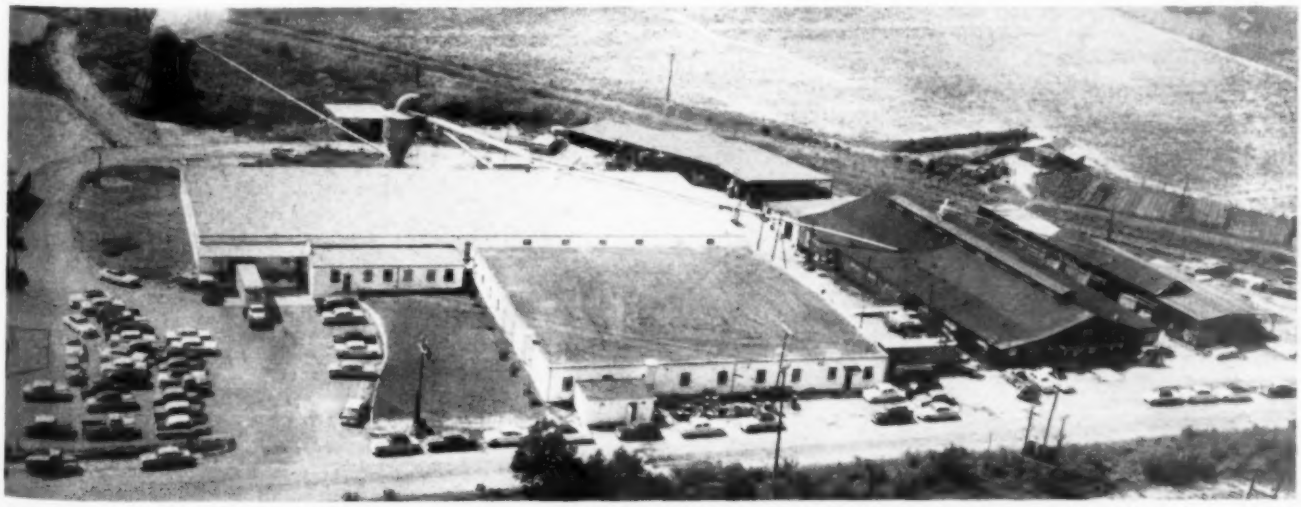
Many successful furniture manufacturers have borrowed a practice, long used by the automobile industry. This is to buy various components from specialty woodworking plants. These plants are equipped with specialized machinery; staffed by skilled personnel of considerable experience and have the capacity to produce the special part, or parts, of good quality at a lower cost.

Typical of this kind of plant operation are Madison Woodworking Company and Madison Wood Products, which currently operate as two companies at Canton, Mississippi, with a total of 210 employees. Madison Woodworking Company's major products include dimension stock for tables, moldings, furniture legs and furniture frames. Madison Wood Products produces finished legs for the furniture and bedding industry, juvenile furniture, upholstered chairs and bunk beds, with most of the wood components purchased from Madison Woodworking Company.

The present management of Madison Woodworking Company took over the plant in Canton in 1949 when it occupied just 8,000 square feet of floor space and employed only 25 workers. Major woodworking equipment included two automatic turning lathes and main products were furniture legs, carved wooden drawer pulls, and carved pineapples for bedposts. In 1950, Madison Wood Products started a finishing operation in Chicago which was moved to Canton in 1953 and set up to assemble and finish wood parts made by Madison Woodworking Company. Madison Woodworking Company expanded in 1956 with a 24,000 square foot building put up with a bond issue financed by the City of Canton under the State of Mississippi B.A.W.I. (Balance Agriculture with Industry) program. Subsequent expansion has resulted in a total plant area of 70,000 square feet on the seven-acre plant site.

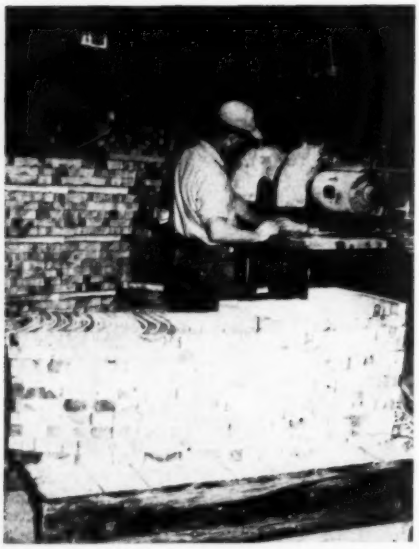
President Joe Muskin maintains his office in Chicago, where he directs the sales of both organizations. General Manager Louis H. Shornick directs the manufacturing operations in the Canton plants. Madison Woodworking Company occupies 35,000 square feet of floor space and Madison Wood Products has approximately the same amount. All facilities are in a single location and the two organizations have the same office facilities.

"Madison Wood," the term used by Cantonians to embrace the en-



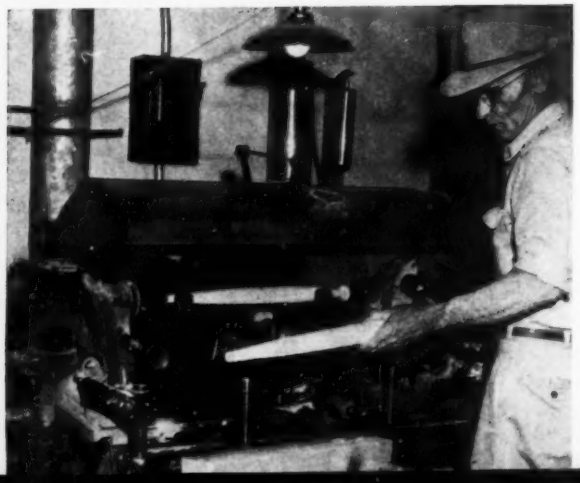
*Aerial view of the Madison Woodworking Co. and Madison Wood Products plants in Canton, Miss. Not shown is a new 13,000 square foot chair plant.*

*Assistant Plant Superintendent Odell Fortenberry checks cutting dimensions.*



*Angle cutting chair frame stock at a Bell double miter saw.*

*William T. Hackett, Jr., operations manager of Madison Woodworking Company and Madison Wood Products (left), and Louis H. Shornick, general manager (right).*



*Turning round tapered legs at Mattison automatic turning lathe.*

tire operation, is considered to be Canton's leading industry and products from both operations are being shipped to all 49 states, Canada and Puerto Rico. Currently the plants are operating on two shifts and produce more than 8 million wooden legs annually.

Major turning equipment used by Madison Woodworking Company to produce these legs includes nine Mattison automatic turning lathes. Two Nash automatic turning sanders are used to sand the legs. While more straight tapered legs are turned than other types, odd-shaped legs and legs with beaded and other detail members are run regularly. Square tapered legs are also produced on Onsrud automatic shapers. Production operations are conducted under the supervision of John D. Snyder, plant superintendent of Madison Woodworking Company, and Carl P. Murphy, plant superintendent of Madison Wood Products. All finishing is directed by finishing superintendent, Charles L. Sledge.

General woodworking equipment used by Madison Woodworking Company to prepare the turning squares and machine wooden legs for various uses include: three automatic chain-feed cutoff saws, designed and built in Madison's own machine shop; Vonnegut 8" molder; Mattison 4" molder; Wilkins-Challoner double end tenoner; Hawker dowel machines, and miscellaneous boring machines, routers and all kinds of sanding equipment, such as belt, balloon, brush and drum sanders.

The wood species most commonly used for legs and other turnings are poplar, gum, ash and some soft elm. Other woods are also used to fill customer requirements but these are the woods generally considered standard at Madison. Most turnings are made from kiln-dried squares. Gum squares are obtained from the North and South Carolina area in addition to sources within a radius of 200 miles. The bulk of the poplar squares comes from Mississippi and Tennessee, and ash squares come from Louisiana.

Finishing is highly specialized and Madison Wood Products matches both standard and special

A SIGNIFICANT FORWARD STEP IN MODERN ROUTER DESIGN...

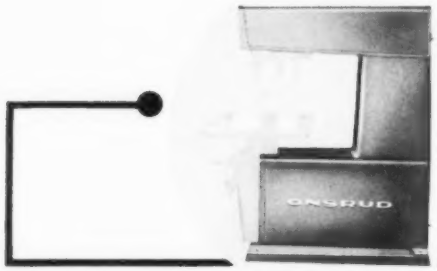
THE NEW ONSRUD 1024 AND 1036 HEAVY DUTY ROUTERS

THEY LOOK DIFFERENT –

THEY ARE DIFFERENT!

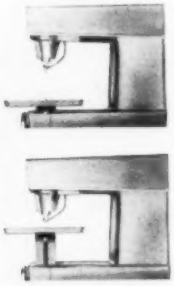
# THE NEW ONSRUD 1024 AND 1036 HEAVY DUTY HIGH SPEED ROUTERS

Here are woodworking's newest, most modern Routers . . . completely engineered for greater routing accuracy, easier operator control, greater safety, maximum production speeds and lowest possible production costs.




**PRECISION** – machine stand is of massive dimensions, made of a one-piece *Meehanite casting.* Performance is vibration-free and totally free of deflection. Maintains precision in routing every type of material including the toughest hardwoods and all nonferrous metals.

**EASY SET-UP** – table raised or lowered by handwheel in 12″ adjustment range. Depth of vertical router head feed controlled by easily set depth-stop.



**CONTROL** – push button station and motor speed selector switch located in eye-level panel directly in front of operator. Stop button cuts-off motor and simultaneously actuates automatic electrically controlled spindle brake.

**POWER** – choice of single speed and two speed drive motors in complete range of horsepower up to 7½ HP . . . for single speed 10,000 or 20,000 RPM spindle drive . . . or two speed 10,000 and 20,000 RPM spindle drive. Onsrud vacuum pulley results in full power and speed transmission.

**WORK CAPACITY** – designed for work of any size. Throat clearance, center of spindle to column is 24″ for the 1024, 36″ for the 1036. Maximum distance from table to spindle 14″. Supplied in choice of 26″ x 36″ or 36″ x 48″ tables. Ample room for all set-ups and complete range of work.

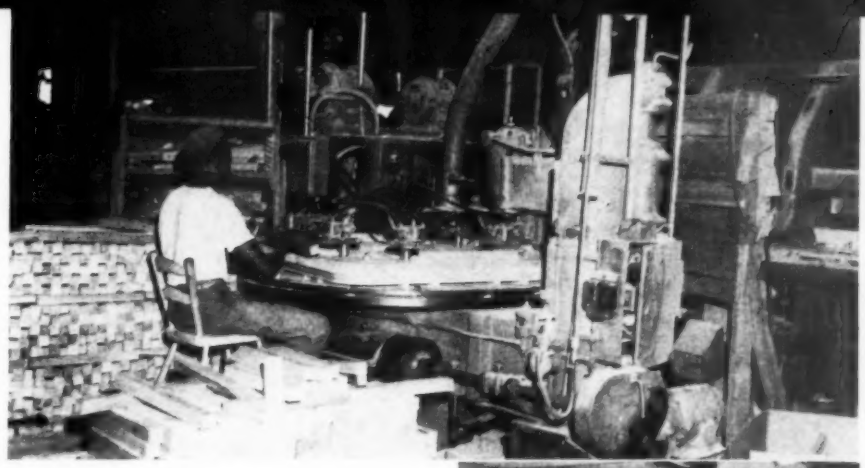
Designed with dozens of features to increase speed and accuracy. Vertical feed of router head adjustable in 3¾″ range . . . with sensitive, responsive pneumatically controlled feed, actuated by convenient foot pedal. Router head quickly removed and interchangeable, for easy maintenance. Optional table with 45° tilt adjustment Your inquiry is cordially invited.

*WRITE FOR your free copy of the Onsrud 1024 and 1036 Router Bulletin No. 1173.*

**ONSRUD MACHINE WORKS, INC.**
**WOODWORKING MACHINERY DIVISION**

7720 Lehigh Avenue • Niles 48, Illinois
(Suburb of Chicago)

**ONSRUD** MODERN HIGH SPEED MACHINES DESIGNED FOR TODAY'S PRODUCTION



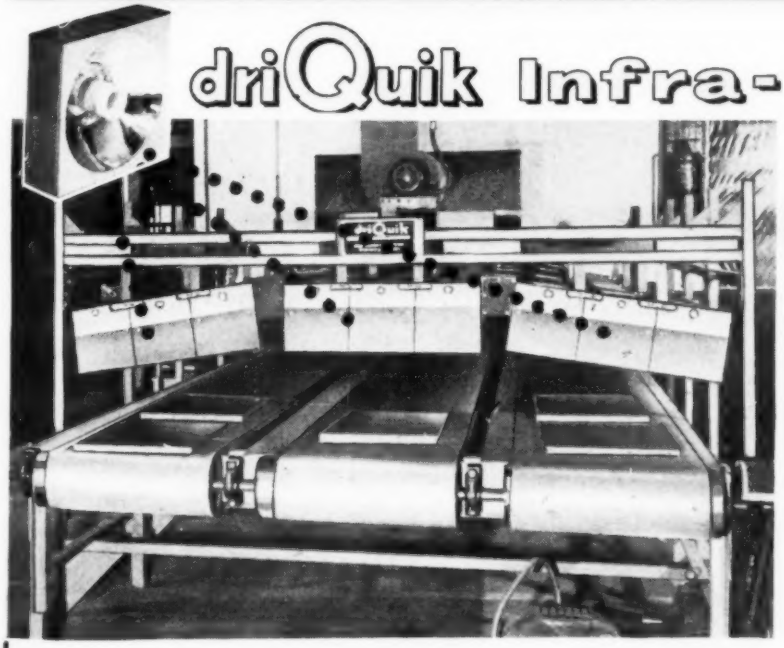
*Square tapered legs shape in multiple operation at Onsrud automatic shaper, using four-station form.*

finishes of customers on all types of legs and other furniture components. Modern finishing equipment used includes that made by both Binks and DeVilbiss. Work handling has been well planned and various work holding devices developed to permit multiple finishing of the legs and other parts.

Madison pays particular attention to providing the best type of fastening for each leg for individual furniture construction applications, covering the entire range of fasteners, such as hanger bolts, dowel screws, plates, T-nuts, corner blocks, dowels, etc. It furnishes all fasteners, ferrules, and other hardware required for installation and decoration of the wooden legs.

*Finishing superintendent, Charles L. Sledge, shows workholding jigs used for spraying legs.*

General Manager Louis H. Shornick says, "Much of our success is due to our ability to supply *a package* to manufacturers—such as table concerns—producing molded rails, corner blocks and legs all ready to assemble, which are delivered in our own trucks."

driQuik Infra-red Ovens

*enabled*

KROEHLER

*Manufacturing Co.*

TO INCREASE PRODUCTION IN LIMITED SPACE

Two driQuik ceramic generator electric infra-red ovens in Kroehler's Bradley, Ill., plant achieved greater production in limited space drying base coats and grained finishes of a new line of bedroom furniture. Whether your firm is large or small, driQuik engineers can help you save space, time and labor cost with a drying system tailor-made to your needs.

**Saves time, handling, rack space on plywoods, veneers, flooring, furniture**

Drying takes seconds where it took minutes before, minutes where it took hours previously. Drying racks and costly multiple handling are eliminated. The problem of dust settling on wet finishes is greatly minimized. Moisture content of wood is not affected.

**accurate temperature control**

Temperature controls can be set to operate at any temperature from 0% to 100% of rated power. Ovens can be zoned, with a different temperature in each zone. You get the right heat at the right time.

driQuik DIVISION DRY CLIME LAMP CORP. GREENSBURG, INDIANA

NO BULBS, SOCKETS OR QUARTZ TUBES TO BURN OUT

One of a series

*HORSES HEAD carved from driftwood by unknown Hawaiian. From the Stem collection.*

## Wood's strength and beauty molded by man's knowing hand.

Reaching deep into the forests of the world, we bring you nature's masterworks, fine wood to be transformed by skilled men into veneer and lumber.

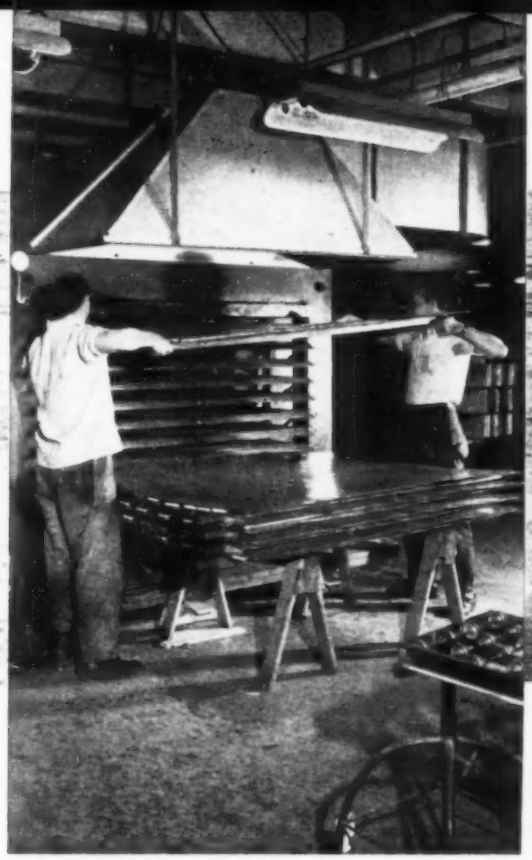
As it did in the forest, the presence of beautiful wood breathes an ageless spirit of friendly charm, creates a lasting image of life.

In addition to large and comprehensive inventories of foreign woods, both veneer and lumber, we are glad to quote on our substantial stocks of soft textured American Walnut, plain, quartered and rift cut White Oak, and many other domestic species. Kiln dried and air dried lumber is available in sizeable quantities.

CHESTER B.
**STEM**
INC.

438 Grant Line Rd.
New Albany, Ind.

# veneer plywood & laminated wood section



- Statistics are still being gathered from McCall's second annual Congress on Better Living which was held last fall in Washington. In all, 4263 pages of comment were recorded from the 100 delegates. The use of wood paneling in one or more rooms was desired by 8 out of 10 delegate-homemakers.

- Reasons for selecting wood paneling concentrated on easy maintenance and beauty of the wood grain. Some delegates pointed out that wood paneling is more economical. Initial cost of wood paneling may be higher, but redecorating and repair are not necessary.

- Many encouraging signs in the hardwood plywood industry offset to some degree competition from imports. The return to the use of plywood in the manufacture of hi-fi, TV and radio cabinets; the bright outlook for wood household furniture; the increasing trend toward wood kitchen cabinets; the expansion in the wood boat industry; and the anticipated growth predicted for house trailers are encouraging signs. Hearings on the import situation come up in Washington about mid-April. The softwood plywood industry is expected to establish its 13th consecutive production record in 1959 with an output in excess of 6500 million square feet, 3/8" basis, an estimated increase of 10% over 1958.

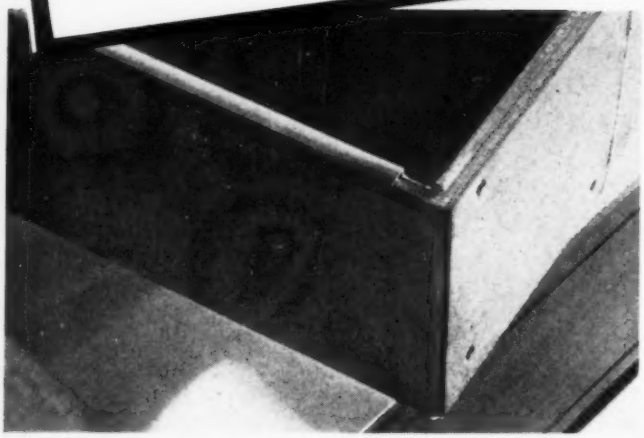
- The "Wood Best for Boats" campaign has been a success at recent boat shows. See the complete story on page 32. The slogan "A boat in every garage" is becoming a reality. Plywood makers should assume an aggressive attitude to reap their share of the market.

con-
handled with
length. On bass,

# Weyerhaeuser
## PANEL PRODUCTS

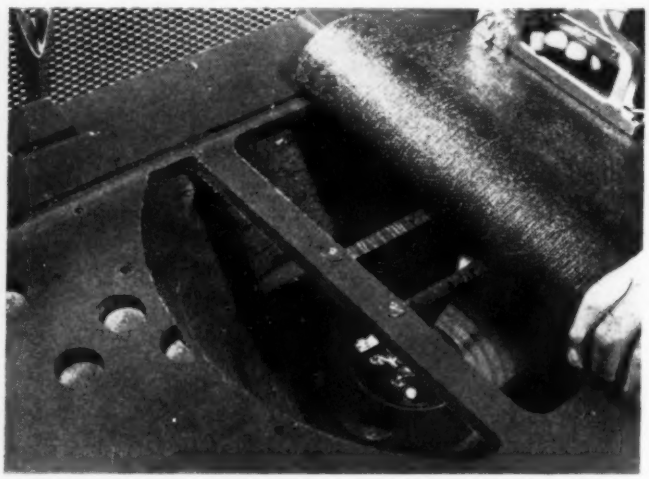
**ACTION MEMO**

To production department:
Check Weyerhaeuser on their complete panel line. Get samples
G.L.



**PLY-VENEER**...a relatively new kraft overlaid veneer panel material...outstanding for its lightweight strength and durability. In this application a single piece has been routed and folded to form drawer sides and bottom. One piece construction is fast, economical and practical.

**VERSABORD**...a quality particle board completely free of knots, grain and voids. Panels machine like wood and can be securely fastened with nails, screws, staples and glue. Dense, compact Versabord will support weight from these drawer tracks without breakout.



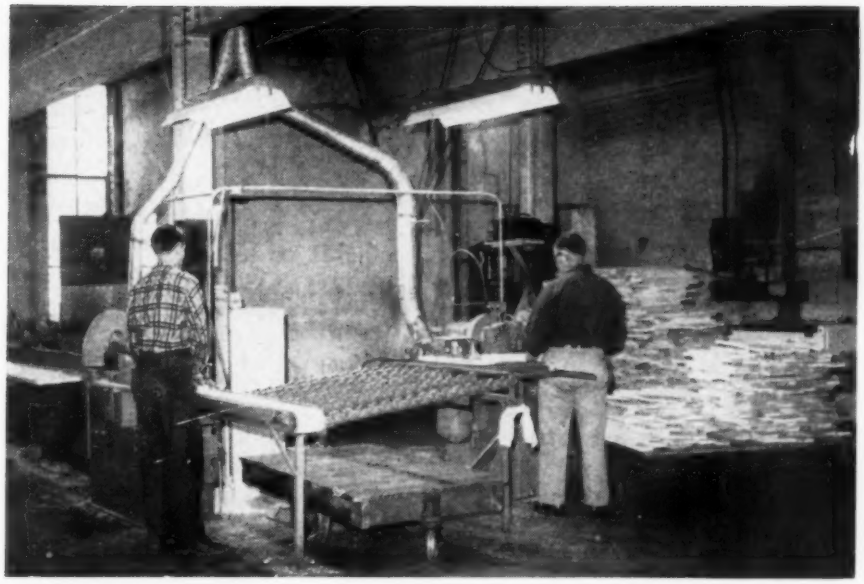
**WEYTEX**...hardboard at its versatile best. The durable surface of this juke box front is Standard Weytex which has been die-cut, formed to a corner radius of 2⅛" and laminated to a wood veneer core. Here workable Weytex was chosen for its performance excellence.

You can look to Weyerhaeuser for all of your panel requirements. Quality and dependability are hallmarks of Weyerhaeuser panel production. The company has long been a pioneer in the research and development of *new* and *better* panel products which are now in demand in furniture, toy, display, woodworking, packaging, materials handling and construction fields. Every day sees new cost and labor saving industrial applications developed for Weyerhaeuser Weytex hardboards, Versabord particle board and Ply-Veneer. It will pay you to check into this versatile line of quality panel products.

*For more information on one or all of the Weyerhaeuser industrial panel products, write: Silvatek Products Division, Weyerhaeuser Timber Co. Box S, Tacoma, Washington*

## Weyerhaeuser Panel Products

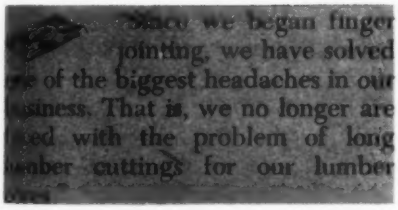
**ducts Division · Weyerhaeuser Timber Company · Tacoma, Washington**



*The finger jointer takes up less space in this corner than the former stacks of shorts which waited in storage, sometimes for months, until a job occurred for them to be used. The few stacks now found at the finger jointer are routine material rolled on trucks for this new operation.*

# FINGER JOINTING USES SHORTS TO MAKE LONG CORES

By Darrell Ward
*Engineering Editor*


Since we began finger
jointing, we have solved
of the biggest headaches in our
siness. That is, we no longer are
ed with the problem of long
mber cuttings for our lumber

This summed up in his own words what Plant Manager W. S. Park demonstrated graphically on a recent visit to the Two Rivers, Wisconsin, plant of F. Eggers Plywood & Veneer Company.

Eggers is a quality producer of plywood and solid core doors. It is a diversified plant which specializes in giving the customer what he wants, when he wants it. Custom made architectural plywood is one of Eggers' specialties.

In the Eggers plant, we saw highly trained veneer matchers selecting pieces from flitches, working with great care to conform to architectural plans tacked up on a long board. Each panel was indicated and complete specifications were included on the blueprint. As Mr. Park pointed out, if one single piece of veneer were misplaced or spoiled, you would not merely ruin a panel. You would ostensibly be ripping out a whole wall of some dozen or so panels. This is the nature of the architectural field.

When a building is designed, plans are submitted with invitation for bids and Eggers goes into action. They carry a large inventory of architectural veneers at all times. This enables them to submit samples for the customers and architects to approve.

The architect may call for anything and everything conceivable in the plywood line. Rare imported woods, such as ebony, teak, rosewood and others may be specified, or the veneers on another job may be more popular domestic hardwoods. The job may require only so many wall panels, or it may take special size panels plus railing, table and desk tops, cabinet paneling and a myriad of other applications of plywood. Each piece, part or panel is individually designed for color, grain pattern, or other features included in the tight specifications.

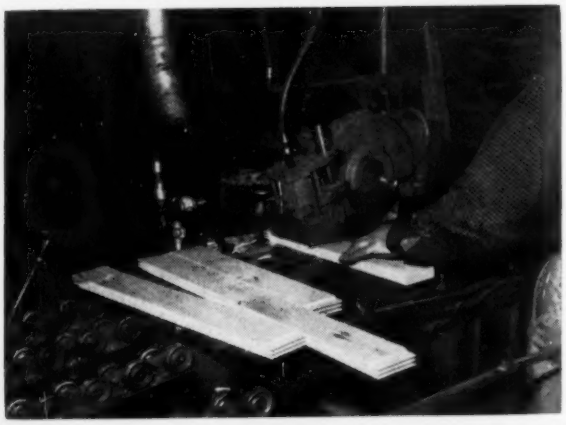
In typical installations such as banks, churches and other large public buildings, panels and tops may range up to fantastically large sizes. It is not too unusual for plans to specify panels 14'-16' long. Obviously, solid core stock for such panels and tops places abnormal demands, as we usually think of material procurement, on any buyer.

"We were always pushed for long cuttings," Mr. Park complained, "and we were getting into a situation of having five or six carloads of short for every one of long material. There was always a surplus of short length lumber taking up storage space, waiting for something when it could be utilized. Culled shorts from the cutoff saw naturally were fed to the hog."

This dilemma grew relentlessly. The company did not feel they could afford to buy all top grade lumber for everything, just to get a sufficient quantity of long cuttings. Normal, good quality construction could be handled with No. 2, except for length. On bass,

*At least five sortings are made by the cut-off saw offbearer at this position (one not seen behind worker). Only the three longer cuttings were most useful previously. Now, with a finger jointer, the two shorter lengths can be utilized to fabricate any length for long plywood cores.*

*All odd-length shorts can be consolidated with the finger jointer to eliminate multiple sorting, matching and stock-piling that occurred on these pieces previously.*



*Finger jointing is automatic, except for this work-and-turn operation at the cutterhead. The hydraulic clamp holds pieces as they move past the cutter. On every second stroke, parts are automatically carried forward past the small glue spreader fingers just left of cutter.*

*Helper at finger jointer sees that operation is moving smoothly and retrieves fabricated boards as they are automatically ejected by the machine. Stack at right is made up entirely of finger jointed boards which will go into long length cores.*

one of their basic core stock materials, the price differential between No. 1 and No. 2 made long length cuttings cost about 57% more with no practical difference in quality. This was necessary, however, merely to get the extra length.

If random length material could be cleaned up on the cutoff and joined end to end, length of core stock for achitectural plywood would be no problem. That is where finger jointing entered the picture, and an Onsrud finger jointer became a quick solution to the long standing problem.

By switching to finger jointing for core material, yield has been estimated to increase about 5% to 10%. This is in addition to elimination of more costly material to get extra length. The estimate is based on an average of 2000 bd. ft. per day run through the finger jointer, part of which goes into cores for some of the 5000 bd. ft. of lumber core plywood shipped daily.

All finger jointed material does not go into cores. About half is used for cabinet type molding which will eventually be painted. And, being painted, this molding never has been noticed to show any joint visibility nor have there ever been complaints about finger jointed material replacing solid. No special issue is made and no special notice is given to this fact. It is routine production at Eggers and apparently taken for granted by customers.

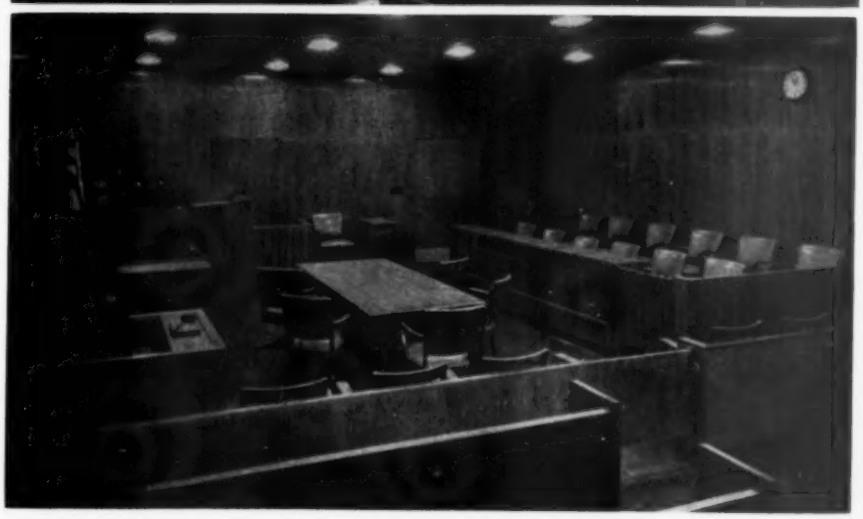
Core stock is run in 4/4, 5/4, and 6/4 basswood while molding is of poplar in 5/4 thickness. Both materials are for interior use and are finger jointed with National Starch Wood-Lok polyvinyl adhesive diluted with 10% added water for better flow in the finger joint machine. Mr. Park said, that in his opinion, finger jointing would be perfectly applicable to exterior and marine plywood with no detriment to quality, provided pointing is done with appropriate adhesives.

An interesting question about the matching or mating of materials was brought out in a discussion of the experience Eggers has had on experimental runs with various test samples. Different combinations

*Laying up of veneers and finger jointed cores is exactly the same as for any standard operation. No special concern or handling is required for fabricated core more than solid.*

*Finger jointed cores go right into the Williams-White ten-opening press along with solid cores. The company makes no distinction between the two types of cores, except in instances where machined edges will receive natural finish instead of paint or veneered edge banding. Exposed, finger jointed core can have differential of color and glue line strongly emphasized by a natural finish, therefore is not desirable for machined edges.*

*This is a typical church installation for which Eggers furnished all plywood panels to the contractor and subcontractors who fabricated such things as pews, wainscoting, altar and rails. Entire job is in plain sliced red oak veneers.*



*This courtroom was completely finished off with plywood supplied by Eggers in plain sliced walnut. Rails, table tops, seating and wall panels were matched to architectural specifications. Both seating and high wall paneling are instances in which extra long plywood must be fabricated.*

have been tested with heartwood against sapwood, as well as different softwood and hardwood combinations. The type of material and moisture content seems to make so little difference that it is unnoticeable. Very minor adjustments may be required on pressure and length of fingers, but the latter is a matter of .003" to .004" shorter fingers for softwood. In this, the grain permits more compression and closing of the joint. Hardwoods tend to spring back, leaving a few thousandths of an inch opening at the ends of the fingers if they are not made slightly longer.

Telegraphing has never been a complaint on finger jointed cores at Eggers. And, they have no reason to anticipate this kind of problem because of two basic reasons. First, the company has long been experienced in making butt jointed core stock and has eliminated problems with that. Finger jointing is even easier. Second, finger jointing is more or less self compensating for differential in moisture content or other factors of the jointed materials. Finger jointing spreads the differential out over the length of the fingers instead of letting it appear at a precise glue line.

When considering the question of how long is a short piece for finger jointing, this seems to make no difference as long as the part can be handled at the cutterhead. A foreman at Eggers had carried this to an extreme degree just to see what could be done. He displayed a rather exaggerated example about 8′ long which was composed of dozens of odds and ends put together, some of which were only an inch or two between joints. The whole fabricated board appears to be just as good as a single solid piece of similar material.

This would imply that every scrap a few inches long could be finger jointed to make any desired length board. That would be a true implication but for the fact that there would be practical limit on the number of pieces run through the machine and fitted together. And, there would have to be a practical balance between cost of material and cost of labor to handle waste shorts from cutoff to finger jointer. As far as we could observe, however, the number of joints in a given length board made no difference for properly fitted joints after dressing.

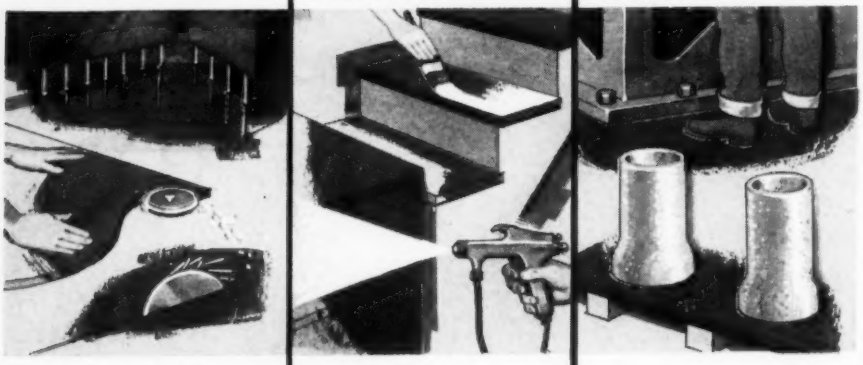
The net yield for any given load of raw material logically should run considerably greater than Mr. Park's estimate, but in fairness to the situation of relatively short experience in this operation, his estimates were on the conservative side. This finger jointer was installed last October and he believes he has to learn about it yet. He does agree that finger jointing is applicable for any kind of material provided the material is otherwise suitable to the job except for length. Actually, quality can be considerably improved on most any material by cutting out minor blemishes and finger jointing where the cuts are made. The result could be a select grade better than any top grade lumber specifications.

With the finger jointer in the plant, Eggers can produce finger jointed boards up to 6" wide and 16′ long in routine operations. The


# Lebanex

## The Versatile Solution to Board Material Problems . . .

**MACHINABILITY** | **PAINTABILITY** | **WEARABILITY**



For a clean-cutting product with excellent screw-holding characteristics, Lebanex is the right material.

Wherever a smooth surface is required to eliminate pre-finishing operations and take any type of finish perfectly, Lebanex is the sound, logical choice.

Wherever resistance to hard wear or heat is required, Lebanex is the perfect shield of protection.

WRITE for folder describing the complete Lebanex line.

CPC

The composite structure of Lebanex accounts for its superiority on all points. In the best grade, the solid three-ply (or more) core is built up of top grade jointed veneer. Laminated to each side is a sheet of 1/10 inch thick Lebanite, a light-colored, dry-process hardboard having high internal bond strength, smooth, paintable surface, homogeneous structure, and high resistance to heat and abrasion.

Lebanex is available in four popular grades, from ½" to 1½" thick, for every industrial purpose—furniture, cabinets, boat building, shelving, tabletopping, flooring, partitioning. Wherever you use it, the problem of board material is no longer a problem . . . with Lebanex.

**Cascades Plywood Corporation**
**LEBANEX DIVISION** PUBLIC SERVICE BUILDING PORTLAND 4, OREGON

*Manufacturers of:*
LEBANITE HARDBOARD • PERFO-ROUND & PERFO-SQUARE • CUSTOM PARTS

# GENESIS for GENIUS

In the beginning was a tree.

And man, using the genius with which he was endowed, felled the tree and invented machines for processing it into various wood products and types of lumber for the benefit of mankind.

Among the many lumber items none is more generally serviceable or more versatile than plywood. It has come to be widely used in buildings, in boats, in trucks and automobiles, in furniture, in crates and various other products.

It became the lot of Coe Engineers to conceive and develop into practical units many of the basic machines used in veneer plants throughout the world.

For general guidance or the solution of specific problems the counsel of Coe Engineers, based on their extensive experience and specialized knowledge, is available without cost or obligation.

THE COE MFG. CO.

VENEER MACHINERY *Since 1852*

**Painesville, Ohio**

## Click's Veneer Tables

For Manufacturers, Dealers Anyone Who Works Wth VENEER, PLYWOOD, CUT LUMBER, BOXES, Etc.

*A handy book of accurate tables for quickly determining square feet contents of veneer and the cubic contents of logs, complete to fractional units.*

*Users tell us it pays for itself in a month in time saved and errors eliminated.*

SEND FOR YOUR COPY TODAY
ONLY $10.00 POSTPAID

*Fourth Edition Now Available*

**Mrs. A. Graham Click**
Click's Veneer Tables
P.O. BOX W-147
ELKIN, NORTH CAROLINA

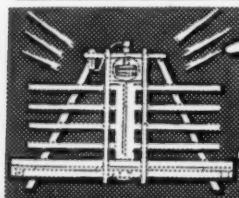
*"You're crazy—'barking machines' don't bite!"*

entire machine is operated by two attendants and most of its functions are automatic. One man feeds pieces into the cutter, turns the piece end for end and repeats. On every second stroke, the machine automatically applies glue and carries the piece forward on a conveyor and into the subsequent pressure clamping and ejection functions, after which the offbearer removes the fabricated boards and stacks them on a pallet.

Since this new machine was installed last fall, there has been a change in the attitude throughout the company. Loads of short lumber which piled up around the plant have disappeared. The production bottleneck of waiting for long lumber cores has been eliminated. But most important as far as the Eggers organization is concerned is the fact that "we are now making better core than before and we believe, the best core possible."

*Coming Next Month!*

Complete report on the Southern Pine Association's Annual Convention and Machinery Show.

## The Bennett 2-WAY PANEL SAW

One man can rip or cross-cut a 4'x12' panel!

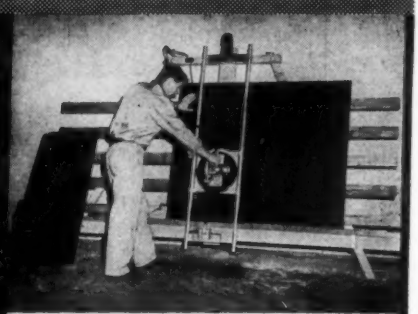
No lifting or turning of unwieldy panels!

Anyone can operate - skill not required!

No need for a square!

No need for rule or tape!

Satisfactory performance guaranteed or your money back!



**RIPS OR CROSS-CUTS**
panels of plywood, hardboard, tileboard, plastic laminates, and other materials.

*In Use Coast-to-Coast by*
- RETAIL LUMBER YARDS
- CABINET AND WOODWORKING SHOPS
- SASH AND DOOR MILLS
- BUILDING CONTRACTORS
- CRATING AND SHIPPING DEPTS.

WRITE FOR PRICES AND LITERATURE
**RICHARD C. BENNETT MFG. CO.**
BOX 332 LACEYVILLE, PENNA.

## CURVED PLYWOOD?

**Made to specification**
**High-Frequency bonding on low cost forms**

Tell us your problem — we'll solve it to your specifications. We manufacture unusual plywood shapes for applications ranging from church pews to water skis . . . table legs to torpedo cradles. Our high-frequency presses mass-produce curved parts fast and at lower cost than other methods, and with greater stability. We have over 200 stock dies available for stock shapes. Write, wire or phone RI-2-2474 for quotations and complete engineering service.

PLY-CURVES INC.
1615 Monroe Avenue, N.W., Grand Rapids 5, Michigan

## READER ASKS

# How Can We Avoid Excessive Moisture?

*Our problem is with rotary cut plywood panels which we make into shelves and stock in various finishes. The summer climate here in New York is quite damp, the humidity often going above 80%. We have been considering installation of a dehumidifying system to keep the moisture content of our stockroom down to normal levels and thus avoid excessive moisture absorption of our finished stock.*

*Our question is: what will happen to our shelves after we ship them? They will then be exposed to the dampness and moisture prevalent in the eastern area during the summer months. Do you think they would have a greater tendency to warp than they would if we install this dehumidifying system?*

*What about the possibility of sealing the exterior walls of our stockroom against excess moisture? We are not too confident as to how much good this will do.*

Answer on Page 60.

*portable* **WORKRITE** *electronic welders*

**HELPS SMALLER PLANTS COMPETE**

MODEL 3,000

*the modern way to weld* **WOOD** *and* **PLASTIC**

*NEW — MORE POWERFUL MODELS*
INCREASED POWER — NEW CIRCUITS
NEW TUBES — NEW STAMINA

***NO DOWELS . . . NAILS NO CLAMPING . . .***

Easy to operate. Press the trigger and you have a perfect bond in 5 seconds. Welds wet or dry woods. Formica, Masonite, Micarta, etc. 2700 watts of electronic power for less than $700.00. 3 powerful models. Complies with U.S. Safety code and F.C.C. regulations. 120 day warranty.

*Dealerships Available*

**WORKRITE PRODUCTS CO.**
808 West Doran Street, Glendale 3, California
*Write For Free Illustrated Folder*



***We Specialize in . . .***

- **streamline white oak**
- **american walnut**
- **cherry**

# Veneers and Lumber

**AMOS-THOMPSON CORP.**
**Edinburg, Indiana**

## Here's The Answer

*A Supplier of Humidifying Equipment Has Answered the Question on Page 59. Here Is His Advice.*

Normally, it would be reasonable to assume that the relative humidity most appropriate for storage of these panels before shipment would be in the neighborhood of 40%-50% when the indoor temperature was approximately 75°F. However, the point which is raised concerning the application of dehumidifying equipment to maintain lower relative humidities and concern for the product after shipment is quite appropriate. Actually, it is very possible that damage could be done to the panels if they were stored prior to shipment in a room where the relative humidity was maintained at around 50% and then shipped out to customers and during transit and use be subject to high relative humidities.

The problem described is not the least unusual, nor is it limited to New York. The same problem exists in the southern part of the U.S. during the summer months. The temperature inside a normal plant of this type might be of 85°F., or more, and an average summer relative humidity of about 60%. However, the relative humidity may go up to virtual saturation for some periods of time. The New York plant probably does not have an average relative humidity anywhere near the 80% or 90% which was mentioned. As a result, the average relative humidity to which the panels are exposed in this plant and in storage is probably in the neighborhood of 60% or 65%. Consequently the wood does not have the extremely high moisture content which would be true if this material were stored at 80% or 90% relative humidity for a long period of time. The general fluctuations during the day and night will bring the average relative humidity down considerably.

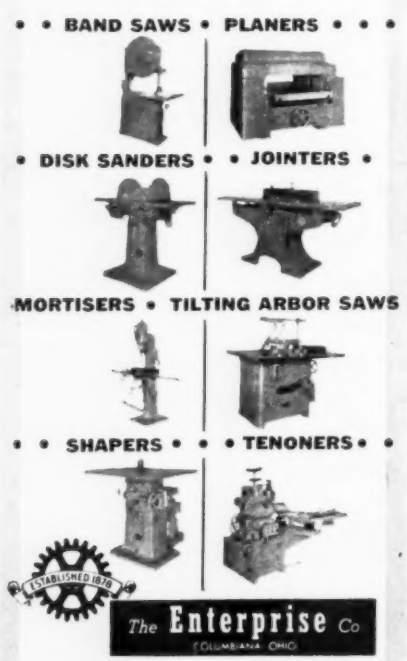
In summary, it would probably cause more trouble than at present if your reader dehumidifies this area and ships the panels to customers in areas where the humidity is considerably higher.

Instead of going to dehumidification, it might be practical for this plywood manufacturer to obtain the same results by heating the storage room. Let's assume that conditions of 90% relative humidity will obtain at a dry bulb temperature of 80°F. Under these conditions there will be 10 grains of moisture per cu.ft. in the air. If the storage area was heated to 109°F. the 10 grains of moisture in the air would produce a relative humidity of just under 40%. You see, air at 109°F. will hold 25.62 gr. per cu.ft. when saturated. With only 10 grains per cu.ft. in the air, the relative humidity would be 39%. The emc of the plywood would be in the 7% to 8% range.

When the plywood is taken out of the heated area into the atmosphere of higher relative humidity, the plywood will absorb moisture and warping is more than likely. Would it be possible to prevent the warping by wraping the bundles or skids in heavy water-resistant paper? This procedure would prevent warpage in transit, and transfer their problem to the plant of the plywood user. Here, again, the plywood could be stored in a heated area.

We suggest heating, rather than dehumidifying because the equipment and operating costs are so much less. The required temperatures for maintaining 40% relative humidity are not excessive, and, of course, the high temperatures would have to be carried only during periods of very high relative humidity.


"CRESCENT"
WOODWORKING MACHINERY
by ENTERPRISE




The Enterprise Co
COLUMBIANA, OHIO

BIRDS EYE VENEER CO.
SINGLE PLY VENEERS • ALL NORTHERN HARDWOODS
ROTARY CUT ····· SLICED ····· HALF ROUND
BeVeG VENEERS
BIRDS EYE · CURLY & PLAIN HARD MAPLE
NORTHERN BROWN ASH · NORTHERN RED OAK
BIRCH · CORK WHITE PINE · BASSWOOD · ELM
P. O. BOX 317
Escanaba, Mich.

**WHEN IS A GLUE LINE LIKE A DUCK'S BACK?** *When you use new* MELURAC® *305 adhesive resin!* With any wood, you can get waterproof bonds surpassing FHA specifications, Commercial Specifications CS 35-56, and the toughest Military Specs. MELURAC 305, a melamine-urea adhesive, easily takes the double cyclic four-hour boil. You get these superior results *at no increase in price.* It's non-staining, quick-setting, long-working, easy to handle and cures at moderate temperatures. Shrug off tough waterproof bond specs for block flooring, veneered doors and exterior and marine grade plywoods with MELURAC 305.

CYANAMID

AMERICAN CYANAMID COMPANY
PLASTICS AND RESINS DIVISION
324 Rockefeller Plaza, New York 20, New York

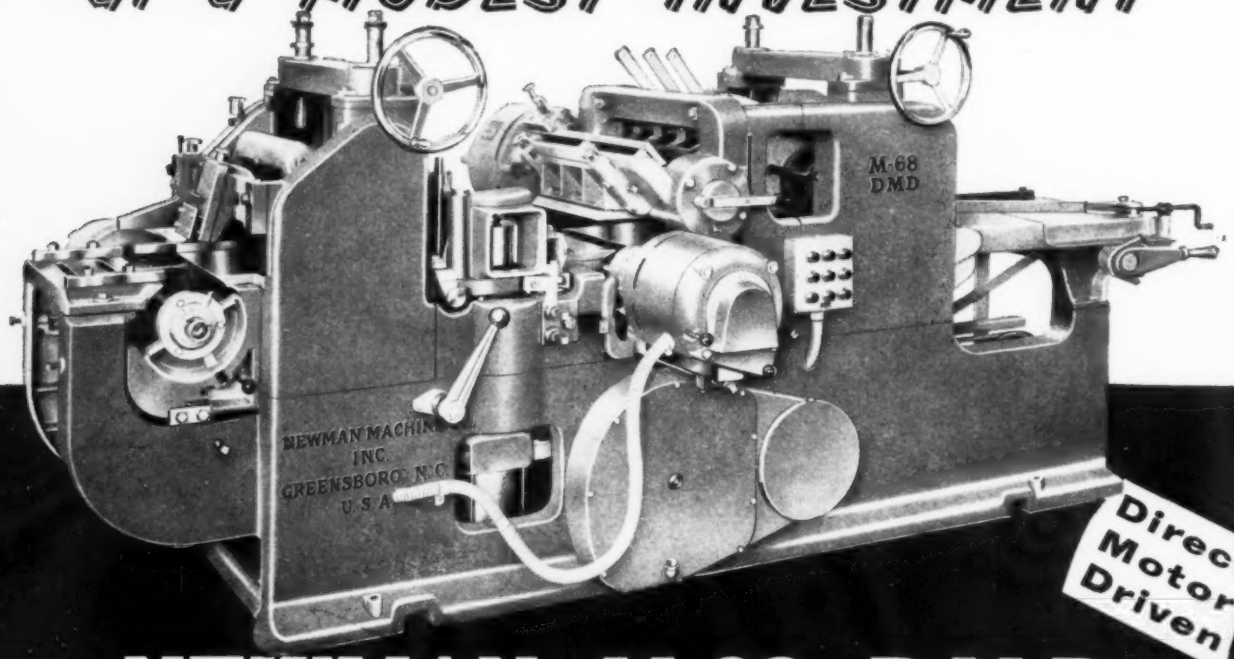
*In Canada:* Cyanamid of Canada Limited, Montreal and Toronto
*Offices in:* Boston • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Detroit • Los Angeles • Minneapolis • New York • Oakland • Philadelphia • St. Louis • Seattle

# YOU *asked for it*

Newman

## A Six Roll ALL ELECTRIC PLANER and MATCHER

## *at a MODEST INVESTMENT*

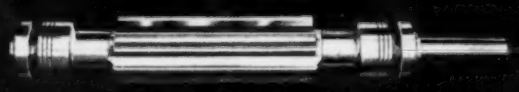



Direct Motor Driven

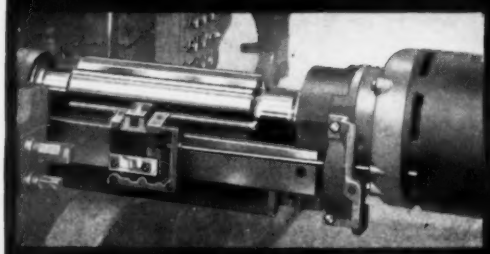
# NEWMAN M-68 D.M.D.

### A MEDIUM FEED MACHINE

**with the features of the high priced PLANERS and MATCHERS**



*Alloy steel forged cylinders dynetrically balanced.*



*Bottom head pulls out for quick grinding and changing of knives. Built-in jointing device.*

These features, offered for the first time in a machine of this price class, are stationary bed, four or six knife round cylinders running in precision ball bearings, built-in jointing devices for the cylinders, adjustable inclined bottom bed plate, bottom profiler, and side head jointing devices. This machine of rugged construction has been designed so that all adjustments are convenient for the operator. Innovations designed for trouble free operation include same size bearings for top, bottom, side heads, and profiler spindles; all feed gears heat treated steel, equivalent size for interchangeability; the **NEWMAN** system of balancing of all rotating parts. All of these features are designed into an extremely close coupled machine to insure accurate sizing and superior finish with speeds to assure at least a carload of beautifully finished lumber in every day's operation.

***Write today for full details and prices***

**NEWMAN MACHINE CO. INC.**
**Greensboro, North Carolina, U. S. A.**

## ABOUT THE COVER

# Century Offers the "Cadillac" of Small Craft

Veterans of the trade at Century Boat Company of Manistee, Michigan, seem to culminate this master craft, which dates back to the ancient Phoenicians, in their line of inboard run-abouts, utility craft and outboards.

This month's cover illustrates the top of the Century line, the "Cadillac" of small craft, the ultimate of skill and craftsmanship by the manufacturer and the height of discriminating taste for the buyer who may pay $6000 to $9000 base price for this beauty plus optional extras and freight tacked on by the dealer.

For such a premium, one would think that this should be a large boat to serve many purposes. It is not a big boat at all. It has no bunks, no table, no large deck area for walking around, no flying bridge or other features which easily could be rigged in a dressed up tub. One very seldom sees even light fishing gear over the side because the specific purpose of this sleek craft is luxury.

She is a little over 21' long with a 92" beam, a 31½" forward freeboard, 21" aft freeboard, 46" molded depth and a 21" draft. The upholstered interior does not make fishing and more rugged uses impossible, but its appearance and quality of materials are more suggestive of a custom-built automobile or custom furniture for the recreation room of a very wealthy home.

Hulls are built upside down at Century where special form jigs are used to lay the triple-braced frame to exact dimensions. A crew of two, one man on each side, clamp the individual pieces of oak framework to the form, then fasten them together with the chine, the keel, the engine-stringers and the battens. Every operation is checked and re-checked.

As Edward E. Greve, manager of research and development said, "No tolerances are allowed in construction. With high-speed runabouts, it would be insane to allow even small tolerances."

Here several thousand silicon-bronze screws and bolts are used in the assembly of each boat. This type was chosen because research proved that silicon-bronze resists corrosion better than any other material tested for the purpose.

All planking, and parts other than structural members, are made of African mahogany. Each part is cut and shaped to match precision templates for perfect fit. Planks are hand-fitted to frames in beds of hull seam compound to provide a full seal. Waterproof glued wood plugs are pounded into the mortized screw holes in the hull sides. Bottom screw holes are filled with a plastic material which dries hard.

The entire hull is sanded to exact dimensions as specified. Special fixtures are used for continuous checking to insure dimensional stability.

Finishing a Century boat is not a simple process. The bottom is first treated with a rot inhibiting sealer, then a special primer. After sanding, the bottom is glazed with a hull seam compound which is designed to stay soft and squeeze out as water expands the planking. Two coats of copper-bronze paint are applied and the boat is ready for top finishing. Copper-bronze is used because it offers adequate protection with only once-a-year replacement. Other materials which offer somewhat better marine growth control have to be replaced two and three times a year.

All parts which cannot be reached by spray gun are sealed and painted as they are installed. Otherwise, the entire boat is given a complete coat of clear rot inhibitor. Two coats of "Car-Hide" red paint protects the hull's interior from spray and bilge.

Hulls are moved to another plant where final finishing and assembly of engine, upholstery, seats, top, hardware and trim are applied. The famous mahogany and white combination finish is one of the most complex finishes found in woodwork. The natural mahogany requires 10 separate steps: sand, filler stain, second sealer, dry sand, hand applied spar varnish, deck seam glaze, wet sand, hot spray varnish, wet sand, and finally a top coat of hot spray varnish.

The white areas are considerably more than a mere painted surface. They take nine more operations: natural filler, sealer, sand, hand applied flat white paint, wet sand, hand applied gloss white, wet sand, masking, spray gloss white (not hot). All finishing materials were specially formulated by suppliers to meet Century specifications.

Even the upholstery, designed for marine use, applied also on the top and foredeck, was not accepted by Century until a sample was installed on the top of a convertible automobile and put into daily use for a full year.

Not only do the dashboard, steering wheel, accelerator pedal and other parts look very much like an expensive automobile, but the purchaser has an even greater choice of engines. The Coronado model shown on our cover can be ordered with an Interceptor V-8 ranging from 170 to 215 h.p., a Gray V-8 with 135, 170 or 225 h.p., a Chrysler Crown 6 at 135 h.p., or a Chrysler Emporor V-8 rated at 275 h.p.

Many interesting highlights might be included on special fittings and tolerances, but they all add up to one factor underlying Century's basic policy: *there are no substitutes or short cuts in quality construction.*

Above are just a few of America's most progressive furniture manufacturers. These and many others* are profiting from DeBurgh Finishing Systems. A no obligation engineering service will show you how to add YOUR name to this distinguished list.

* Complete listing on request.

"Designed by a Furniture Man for Furniture Men"

**DeBURGH** CONVEYORIZED FINISHING SYSTEMS


## Wood Finishes Report
## June 1958-January 1959
## Bedroom & Dining Room Suites
## All Markets

*Code*

1–Natural tones.
2–Bleached or bleached effect, lighter than natural color.
3–Darker than natural.
4–Brown tones, pigmented.
5–Grey tones, pigmented.
6–Tan tones, pigmented.
7–Other colors, pigmented.

*For Walnut Bedroom Suites Based On:*

| | 366 Groupings *June 1958* | 356 Groupings *January 1959* |
|---|---|---|
| Code | 1–72.9% | 67.7% |
| | 2–13.7 | 9.8 |
| | 3– 3.3 | 3.4 |
| | 4– 0 | 6.5 |
| | 5– 5.7 | 6.7 |
| | 6– 2.2 | 3.9 |
| | 7– 2.2 | 2.0 |

*For Bedroom Suites in All Other Woods Based On:*

| | 1078 Groupings *June 1958* | 929 Groupings *January 1959* |
|---|---|---|
| Code | 1–54.6% | 55.2% |
| | 2– 8.3 | 5.1 |
| | 3– 1.2 | 1.2 |
| | 4– 6.4 | 10.5 |
| | 5– 8.3 | 10.7 |
| | 6– 8.3 | 11.4 |
| | 7–12.9 | 5.9 |

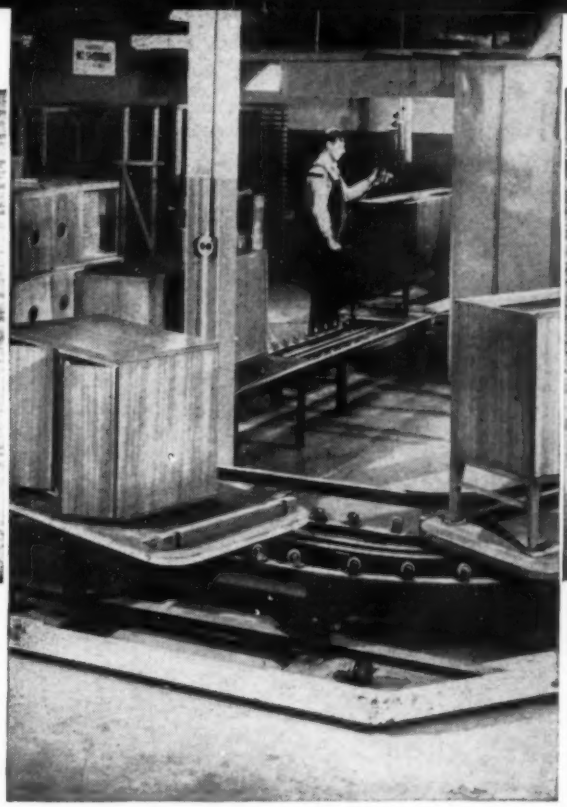
*For Walnut Dining Room Suites Based On:*

| | 223 Groupings *June 1958* | 231 Groupings *January 1959* |
|---|---|---|
| Code | 1–78.9% | 73.6% |
| | 2–14.8 | 17.3 |
| | 3– 3.1 | 1.3 |
| | 4– 0 | 3.5 |
| | 5– 1.4 | 1.3 |
| | 6– 1.8 | 3.0 |
| | 7– 0 | 0 |

*For Dining Room Suites in All Other Woods Based On:*

| | 493 Groupings *June 1958* | 387 Groupings *January 1959* |
|---|---|---|
| Code | 1–75.7% | 69.2% |
| | 2– 6.7 | 5.7 |
| | 3– 2.4 | .8 |
| | 4– 5.1 | 8.8 |
| | 5– 4.1 | 5.9 |
| | 6– 3.0 | 8.8 |
| | 7– 3.0 | .8 |

# finishing section



- Sales of factory-built wood kitchen cabinets in 1959 are expected to soar an average of 22.5% over those for the record year of 1958, a group of leading cabinet manufacturers have reported in an industry survey. Almost 25% of these companies predict a greater use of dark wood finishes. About the same percentage look forward to a sharp interest in natural wood finish in which the grain pattern is accented.

- Next month, *Hitchcock's WOOD WORKING* will publish an article about airless spraying in the finishing of kitchen cabinets and other built-ins.

- A new German machine is an automatic oscillating curve-sander. It is used for sanding curved parts in mass production. Plain tables can be attached and the machine will sand straight parts. The machine will sand in 1' and 2' widths.

- Paint industry leaders in general are predicting an increase of 20% in production and sales of pushbutton paints in 1959. Some manufacturers will go to a larger can size.

- Finishing problems? Send them to us for our new department, the "Finishing Clinic."

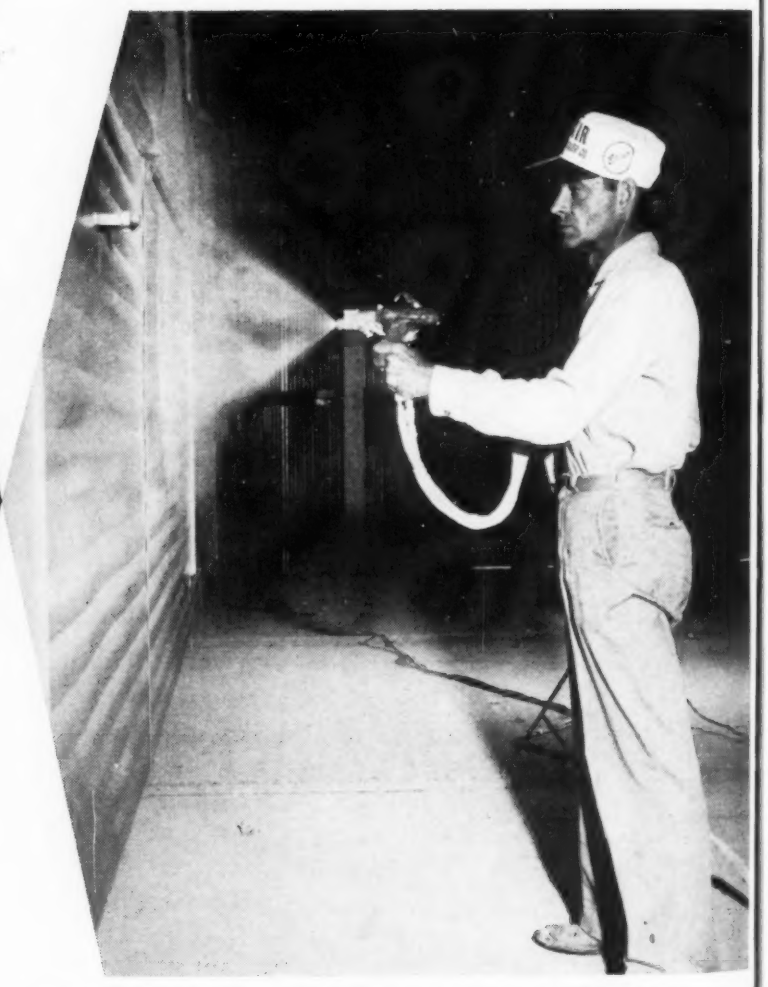
# airless* Spray Coating

***SPRAY PAINTING WITHOUT AIR**

Flamingo Trailer Manufacturing Corporation, Los Angeles, California, with the largest plant in the country devoted to the manufacture of Mobile Homes, utilizes Nordson Airless Spray Coating for the complete finishing of their trailers. This modern method of spray painting has provided Flamingo with these cost cutting advantages:

- **A savings of 20 gallons of paint per day**
- **Health conditions improved 100%**
- **Exhaust air requirements reduced**
- **Improved product protection and appearance**
- **Decreased building maintenance**

By eliminating air as an atomizing agent, Nordson Airless Spray Coating can decrease overall finishing costs by as much as 50%.



**See Airless Spray Painting on demonstration at The Western Metal Exposition— Los Angeles, Calif.—March 16-20, 1959—Booth 176**

## NORDSON CORPORATION

**AMHERST, OHIO YUKON 8-4473**

**In Canada: 864 Pape Ave., Toronto, Ontario**

**write for airless spray painting brochure**

**THE BEST IN SPRAY COATING EQUIPMENT**

*The 13' Sea Flash is a popular two passenger number in the Aristo Craft line from the Atlanta Boat Company*

# FLEXIBILITY . . .

## Key To Success For Atlanta Boat Company

By Darrell Ward
*Engineering Editor*

The Atlanta Boat Company promotes itself as the manufacturer of "the fabulous Aristo Craft" outboard boat line. This is a sharp looking, streamlined piece of merchandise constructed of scarf-jointed mahogany plywood. But, the most fabulous thing about the plant is not realized except by personal visit to get acquainted with the people responsible for its operation. Shrewd engineering thinking and adaptability to business and physical requirements of a given situation would sum up the characteristics of Owner-President Claude Turner and his General Manager Don Pinyan.

Three fabulous results of their keen thinking very nearly exemplify the essence of the whole operation. One is flexibility to meet seasonal fluctuations natural to the boat business. A second is very high efficiency in utilization of facilities, but incorporated into a feeling of open air spaciousness for psychological benefits. And, the third is ultimate economy ranging from extraordinarily low power requirements for the conveyor system to utilization of the last gallon of catalyzed finishing materials. Architectural economy is effected in double decking departments which normally waste considerable space in average plants.

The plant is arranged and scheduled to operate with optimum efficiency on a working force ranging all the way from about 50 people up to nearly 200. No radical changes in flow of material nor in departmental functions are required to make such a shift in production.

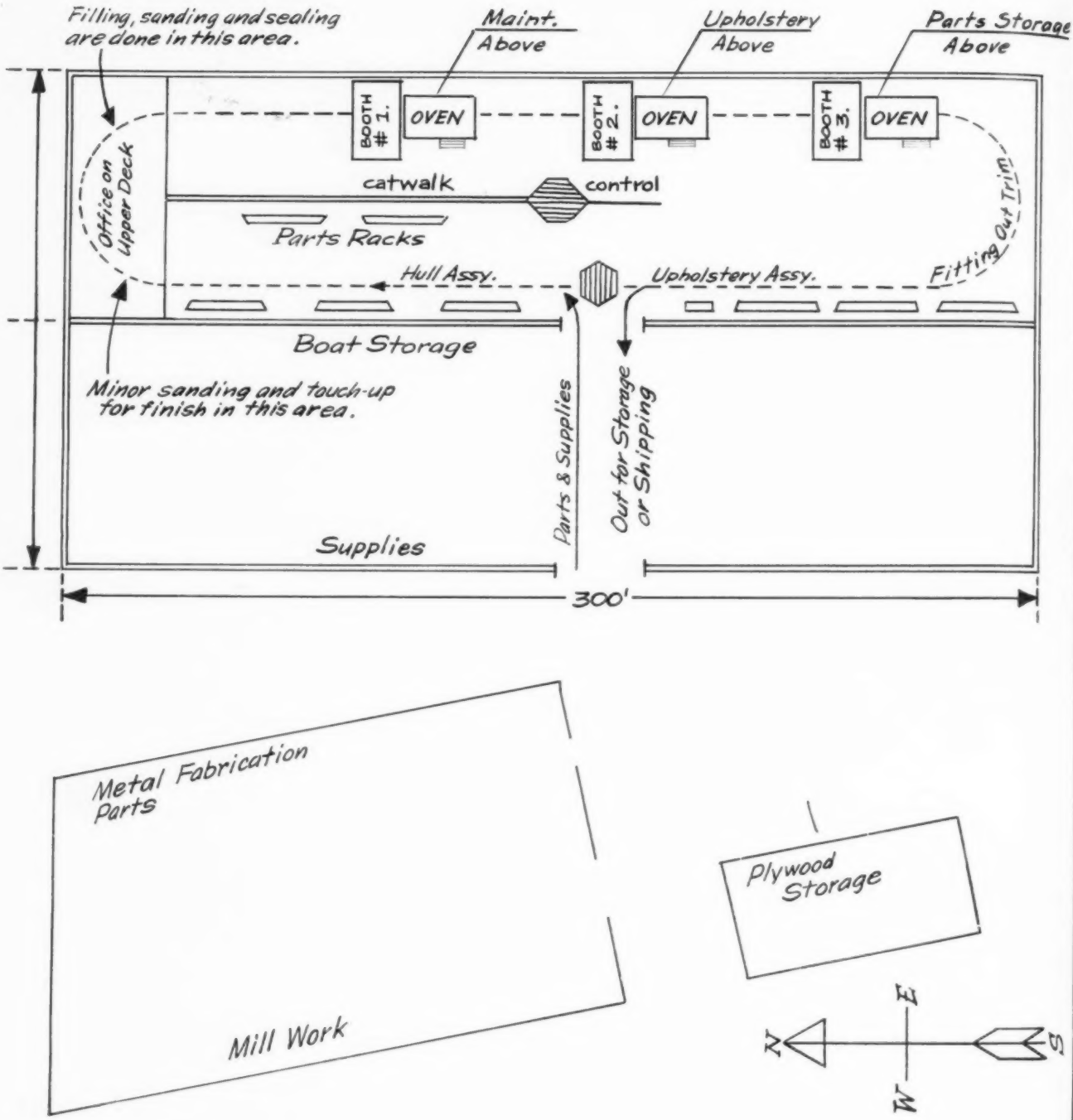
### Loop Conveyor System For Assembly and Finishing

A continuous loop conveyor moves caster equipped dollies around the plant floor with parts moving onto the line and finished boats moving off the line through the same side door of the building. Dollies move sideways for a tighter close pack line instead of wasting space with a keel line flow of material.

Automotive type spray booths with modified side doors permit easy entry and exit of boats through the booths with little or no dispersions of fumes and spray into the plant or contamination from dust into the booths. Concrete block drying ovens are built only high enough to clear the units while the top decks of the ovens serve double duty as floors of mezzanine type small departments. One such oven deck is the maintenance tool room, another is the upholstery department, and the third is used for miscellaneous storage of large parts.

Economy of operation could be pursued through many different observations around the plant, but the best single example was the chain conveyor which moves the dollies around the main assembly and finishing department—a single open room 75′ wide by 300′ long. The conveyor chain rides at floor level and conforms to the general layout of a simple toy train track loop. The chain is approximately 730′ long and has dogs to grab a dolly every 10′.

The dollies were ingeniously designed at the plant to handle any of the several models of boats. Angle iron, mostly of 1¼″ by 3/16″ size, was used for the frames. Each dolly rides on four heavy duty ball bearing swivel casters. Corner turns in the conveyor are of 9′ radius. Since the boats ride sideways, they




*This floor layout shows how assembly and finishing are conveyorized at the Atlanta Boat Company.*

are positioned with the bow pointing inside the loop so as to avoid contact on the short radius turns. This layout was intentionally planned with a minimum, but adequate clearance between units.

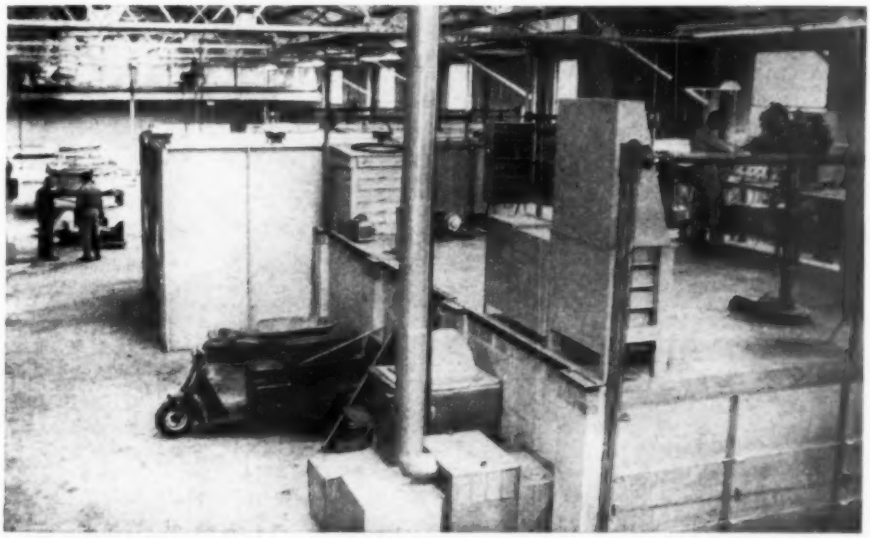
The electric powered conveyor is equipped with a variable speed reductor which allows a wide range of production speed from 80′ to 320′ per 8-hour shift. At full speed, a boat will move on its dolly from one position to the next, 10′ away, in about 15 minutes.

But, the fabulous fact of the whole layout, so far as economy of operation is concerned, is that this entire line, loaded with work and moving continuously at production speeds, is adequately powered by *a single 1/3 h.p. motor!* No, that is not a typographical error. It is a one-third horsepower electric motor which drives the 730′ chain conveyor and pulls a fully loaded line at desired production speeds.

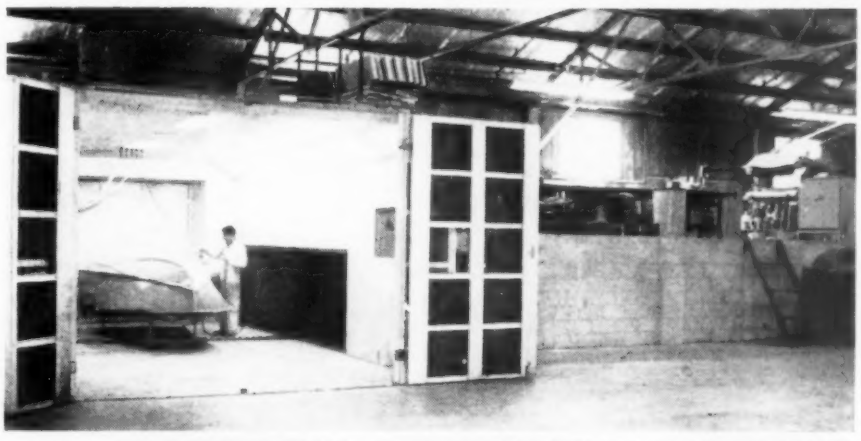
Flexibility, efficiency and economy are not the only three fabulous results of good engineering at Atlanta Boat. Similar features could be traced throughout, but instead of management's proudly boasting of accomplishments, it was modestly pointed out that the company had built boats for about 10 years prior to construction of the present building.

They feel fortunate that they were able to study all of the previously existing problems, explore all of the basic requirements for a sound operation, and plan the en-

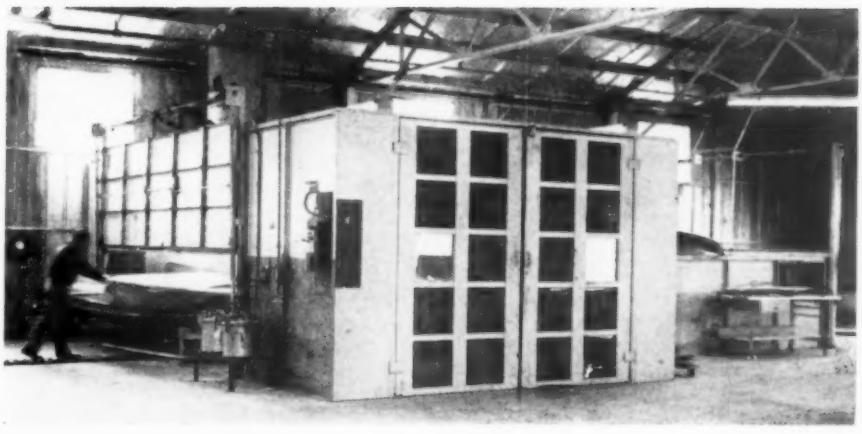
*The catwalk seen in the foreground is reached through the door of the reception room, see page 74. From the catwalk, visitors get an immediate sweeping view of the plant. Assembly of hulls begins on a rolling form near side door, approximate location would be lower right hand corner of picture. The flow of work moves clockwise around conveyor loop. Control tower, with washrooms below, is seen at end of catwalk on far left of view.*



*Efficient utilization of space, but with wide open, airy feeling, is accomplished by double-decking the concrete block drying ovens. Oven number one, in this view, also supports the maintenance department tool room. Filling, sanding and sealing, preliminary to first spray operation, are performed at far end of building in background, below office floor level. Spray booth number one projects out from drying oven at left center.*



*Spray booth number two was opened in this view for demonstration of layout, roominess and lighting inside. Door to drying oven number two is seen behind spray finisher. The fiber glass filter cell doors normally are kept closed to prevent contamination of air. This second drying oven serves as floor for upholstery department.*



*Spray booth number three illustrates modification of automotive booths from in-line traverse to cross-through traverse of units through booth. A standard overhead type garage door is mounted in special counterbalanced frame to open or close the 4' high by 16' wide orifice cut in side of booth. Twin pressure tanks mounted near corner of booth carry pre-mixed catalyzed finish materials of different color. This is more flexible and provides two color ready to use instead of a tank of pigmented resin and a tank of catalyst to be blended at the gun. Tanks, hoses and guns are cleaned at end of each shift. Oven beyond booth serves as storage deck for miscellaneous parts like windshields which cannot be easily stacked on side racks.*

tire layout from chain conveyor riding in a channel on the slab floor to the bow string rafters of the new prefab building.

Don Pinyan said that the painting and drying of a finish had been the biggest bottleneck of all in the old plant. This was because they were not setup with a flexible layout and, since they grew up from a much smaller operation, there soon came a time when one spray booth and one oven were not capable of handling desired production. Everything had to make three trips through the finishing department and this held production capacity down to about a third of what it could have been with a little more space and more equipment.

## Finishing Bottleneck Eliminated in New Building

Atlanta Boat had used a chain conveyor arrangement in the old plant, so this method of moving work automatically followed in the new one. However, since finishing was the old painful problem, more than adequate space was allowed in the new building. The fact is, when one walks into the plant along an overhead catwalk that leads from second floor office (street level at front of building which is built on the side of a hill) toward the double deck control tower in the center of the floor, there is an immediate impression that this is more of a finishing department than a production assembly floor. That is because the three spray booths and ovens, with associated equipment, become so obvious to the eye along the full length of one side of the building.

Other operations, beginning at assembly of parts on a form, all the way through the trim, fitting out, and upholstery assembly at the end of the line, do not require such bulky and obvious equipment or machinery as the finishing side of the building.

The control tower, another example of efficient utilization of space, gives a clear view of the entire floor. The floor of the control tower is the ceiling of the centrally located washrooms. A master control switch is operated from the tower for controling the loop conveyor.

The continuously moving conveyor has been found to be an encouragement for better coordination of work motions along the line, but if trouble should arise, a worker can quickly unhook his unit from the chain or, if necessary, anyone can shut down the full line by throwing the master switch in the control tower.

## Psychology of Open Layout

An open air feeling prevails throughout the plant, even inside the large spray booths where dollies can be pulled around to any convenient position. This open feeling was somewhat unusual for a woodworking plant, so we asked about it. It was established with a purpose.

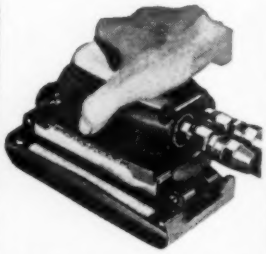
Don Pinyan explained that in an open layout like this, he was able to elicit far greater efficiency from the workers and maintain much higher morale than in the old plant with departmentalized operations separated by walls or partitions. In the new plant, each worker feels that he is actively engaged as a vital link in the over-all operation. In separate departments, all closed off from the rest of the world, people did not seem capable of producing either the quality or the quantity they could produce now. Other inefficiencies were eliminated by having everything on one floor instead of transferring units


SUNDSTRAND

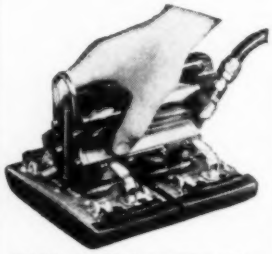
Choose from six sizes of "Job-proved" Air Sanders ...then watch output climb!

Six sizes of Sundstrand Air Sanders—weighing from 3 to 30 lb—all suitable for wet or dry sanding, give you unmatched freedom of choice. Let us show you advantages of each—without obligation, of course.

**OS-800**—lightest weight orbital air sander on the market, at only 3 lb, packs the power and speed needed for production jobs.

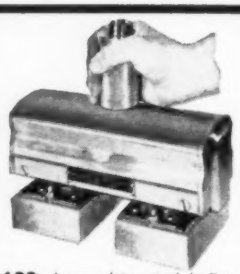


**OS-700**—single-pad orbital sander, weighing 5 lb, operates over 6000 cycles per minute.

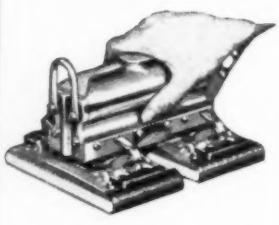


**1000**—straight-line sander with big abrasive area, operates at 2500 oscillations per minute, palm lever control, 7½ lb.

**SP-101**—straight-line, single-pad sander, 3000 oscillations per minute, 5 lb.



**600**—heavy-duty, straight-line unit for sanding, pumice rubbing, or polishing, 1100 oscillations per minute.



**4000**—straight-line, two-pad sander with longer, slower stroke, 2100 oscillations per minute, 9 lb.

PNEUMATIC PRODUCTS

Sundstrand Machine Tool Co. 2531 Eleventh St., Rockford, Illinois

SUNDSTRAND

*A name to remember in* **AIR SANDERS**

# Why DeVilbiss offers you the best value in spray booths today

- **Standardized parts and modular, prefabricated steel panels provide more rigid, more versatile, more durable booths at lower cost!**
- **Specific models, standard or custom-designed, for every type of spraying operation—automatic, electrostatic, or manual!**
- **Each model and type is job-rated, job-proved for guaranteed performance!**
- **Manufactured to the standards of the National Board of Fire Underwriters for spray booths as recommended by the National Fire Protection Association!**

When you choose a DeVilbiss spray booth, you get the unit best suited to your purposes, *at great savings*. That's because DeVilbiss offers economy of operation, efficiency of performance, and ease of installation made possible by scientific adaptation of modular design principles.

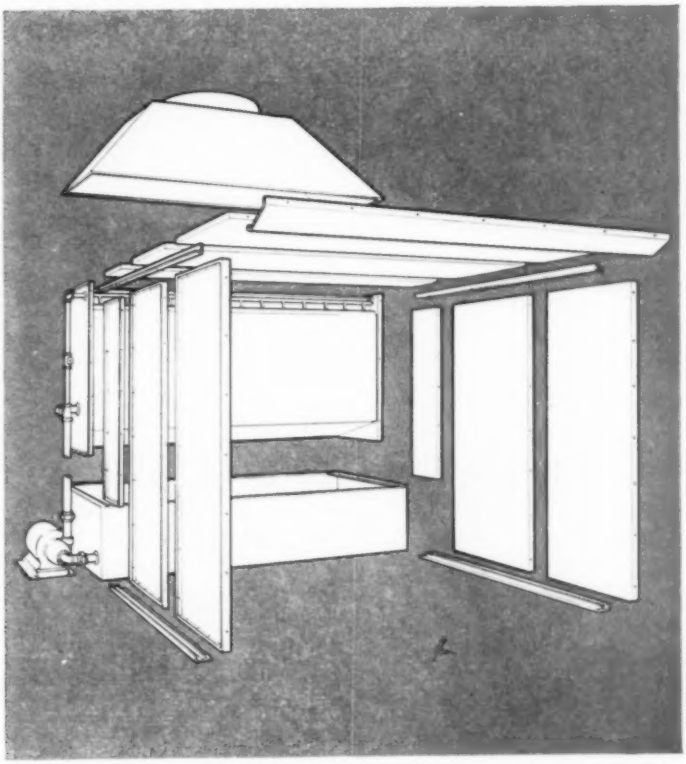
Bolt-together construction saves erection time; offers flexibility for revamping or moving booths as operations and plant layouts change. Design and construction features provide excellent paint-trapping efficiency; stay cleaner longer; save maintenance time and expense.

So contact your nearest DeVilbiss branch office for complete details on any of the more than 500 standardized spray booths . . . or write for a copy of Spray Booth Catalog I-7000.

FOR BETTER SERVICE, BUY
**DEVILBISS**

**THE DEVILBISS COMPANY**
TOLEDO 1, OHIO
Barrie, Ontario • London, England • São Paulo, Brazil
Branch Offices in Principal Cities

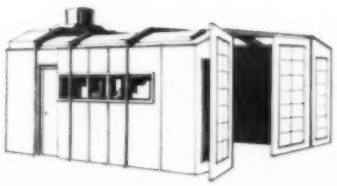
DUST COLLECTORS • INDUSTRIAL POWER WASHERS • FLOW & DIP COATERS
OVENS • SPRAY BOOTHS • AIR COMPRESSORS
SPRAY EQUIPMENT • HOSE & CONNECTIONS • MIST COOLANT UNITS



Bolt-together panels of 18-gauge steel, rolled edges, mitered and welded corners provide built-in reinforcement for DeVilbiss Spray Booths. No additional supports or guy wires needed.

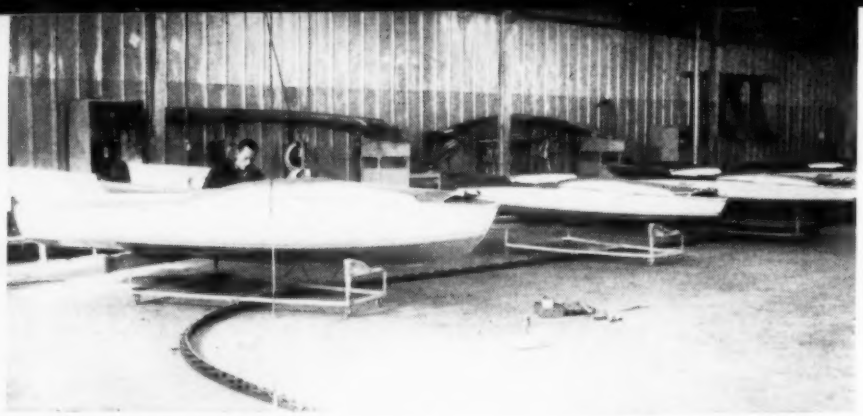
Leg-type Spray Booth

Paint Arrestor Booth

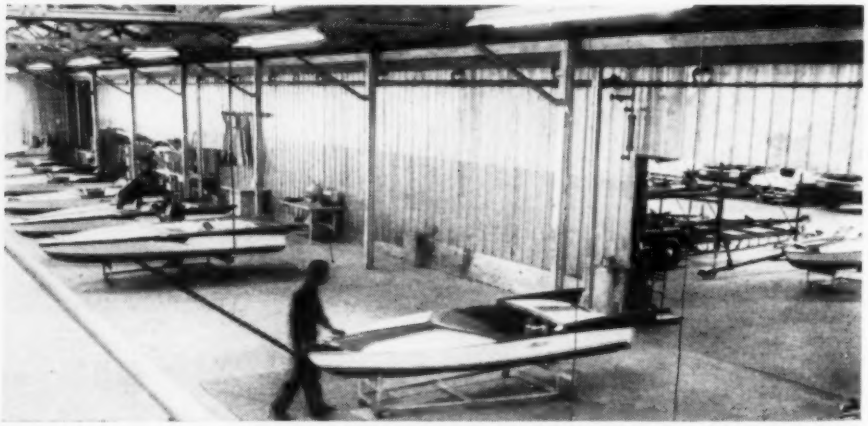


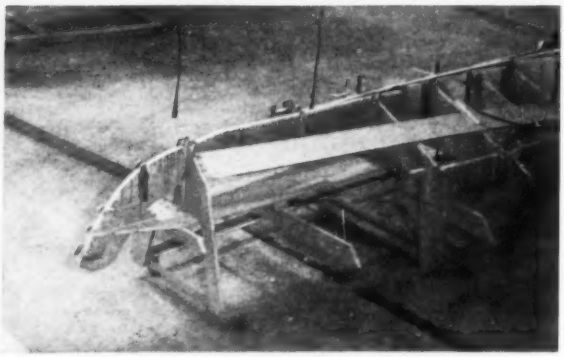
Enclosed Booth with dust filters

Down-draft Spray Booth



*Trim and fitting out begin here at SW corner of building. Stock parts are stored in readily accessible racks along wall. Note how chain conveyor rides in channel on floor and pulls caster-equipped dollies along line. These dollies fit all sizes of boats in the line. There are 12 electric drills and screw drivers used in this one department. Below: After boats are trimmed and fitted out, they are pulled off the line near center of west side of building where conveyor chain dips into floor to drive unit. Boats are unloaded from dollies in next building and stacked for shipment or storage.*





*This assembly for primary hull begins near center of west side of building. This would be to the right of man in view above. Rolling forms are used for primary assembly. After primary assembly, the basic shell is flipped over and form rides on keel in standardized conveyor dollies.*

*Below: Aristo Craft boat styling permits stacking on transom end as shown in this Northwest corner of warehouse. Boats cannot be stacked like this with windshields or tops installed, except for last boat in each bay. Horizontal boats at left center have not been removed from dollies since they were ready for immediate shipment. Before flexible program was fully established, this warehouse had been filled with as many as 1200 boats because of stacking method.*

from one room to another and from one floor to the next.

Millwork and metal fabrication are located in a separate building to minimize dust problems and simplify dust removal. A dust collector system is not used in the main plant for two reasons. One is that the little sanding done there is nothing more than touch-up on wood parts or rubbing down of finish films. The second is that the spray booths and oven are kept closed with equalized air pressure to prevent contamination. A bleeder air duct feeds fresh air to the gas fired blowers at the drying ovens where the hot air recirculates to develop a temperature of 125°F. Ovens are 18′ wide x 36′ long, but only 5′ high to conserve volume of hot air required.

The adjoining spray booths are DeVilbiss automotive type, 30′ x 14′, but modified by openings 16′ wide on each side, only 4′ high. These openings are covered by standard 16′ overhead garage doors which are counterbalanced and lift straight up on their frames. The ends of the booths are fitted with hinged door panels of fiber glass filter sections. These normally are kept closed and easily filter all of the minor quantity of free dust in the shop atmosphere.

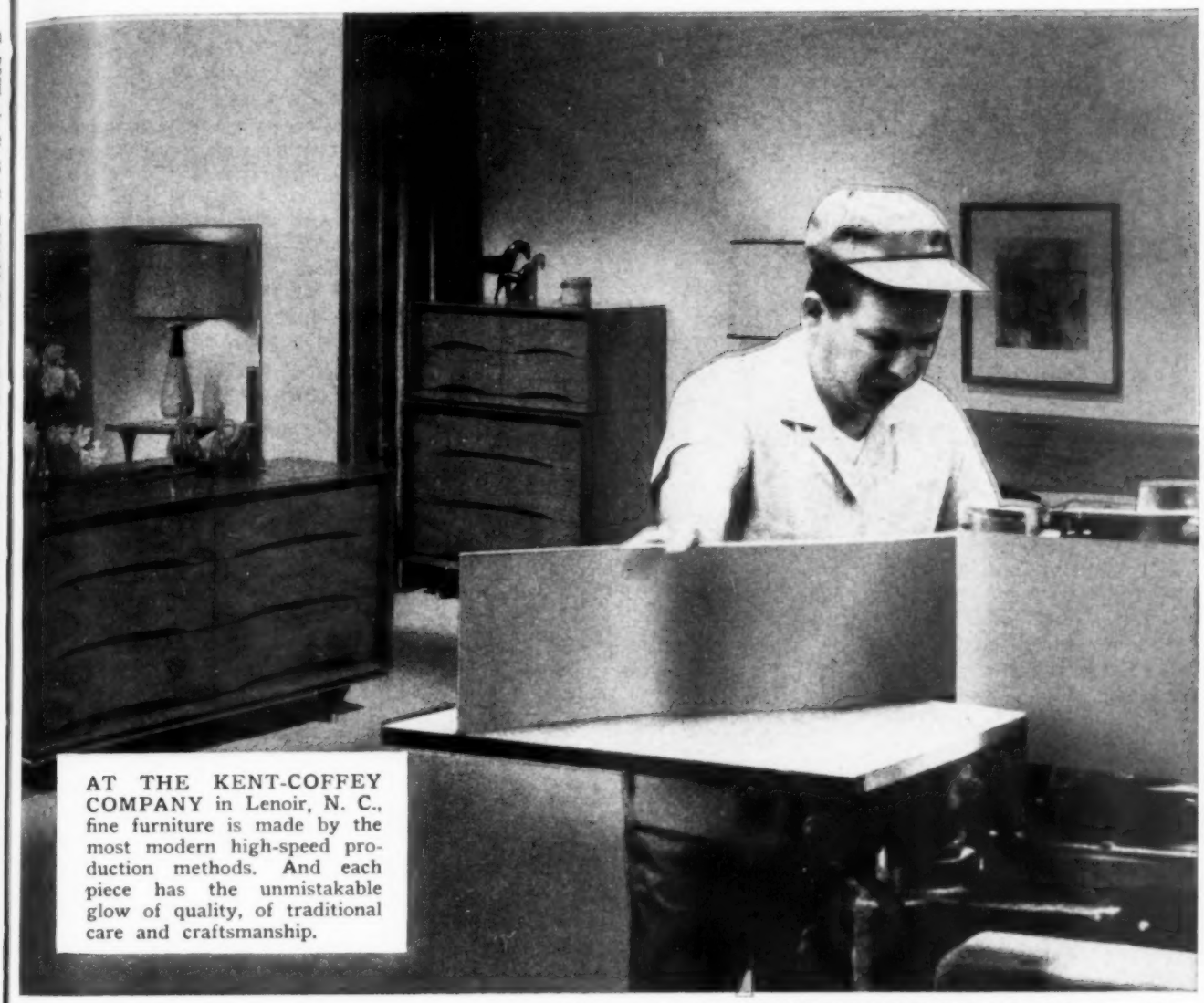
## Finishing Procedures Adapted to Final Coating

Aristo Craft boats carry a combination of epoxy resin and acrylic enamel finishes, both of which have proved their excellence in service and high consumer appeal. The line includes combinations of two-color painted and natural wood plus color panels. All finishes follow the same route through the single conveyor system, colors being changed as required at the spray booths.

Up through the first varnish coat, all finishes go through the same basic steps. First comes natural wood filler, dry, hand sand with 120 grit silicon carbide paper, clear sealer, dry, sand, mahogany paste filler-stain, wipe, dry, very light sanding, and then first varnish coating with epoxy resin material.

At that point, finishes vary according to final coatings. The

# PARTNERS IN PROGRESS AND LEADERSHIP...



**AT THE KENT-COFFEY COMPANY** in Lenoir, N. C., fine furniture is made by the most modern high-speed production methods. And each piece has the unmistakable glow of quality, of traditional care and craftsmanship.

The use of a 4/0 **RESINIZED METALITE** Cloth belt on this edge sander produces a fine finish on serpentine drawer fronts.

## METALITE® helps make fine furniture

Finer furniture is being made faster these days . . . due to the efficient coated abrasives developed by the Behr-Manning research laboratories and the improvements contributed by "Abrasive Tech."

If you have a specific sanding problem, or are interested in a detailed plant survey with recommendations how to increase production and lower costs — contact your nearest Behr-Manning office or write direct to Dept. WW-3.

*The Sign of the Bear means a better product . . . and faster production.*

WE RECOMMEND
How to use coated abrasives to cut costs... improve production, shown in the new 426-page book
COATED ABRASIVES
MODERN TOOL OF INDUSTRY
At bookstores or McGraw-Hill, N.Y.

**BEHR-MANNING CO.**
TROY, NEW YORK
A DIVISION OF NORTON COMPANY

BEHR-MANNING PRODUCTS: Coated Abrasives • Sharpening Stones • Pressure-Sensitive Tapes
NORTON PRODUCTS: Abrasives • Grinding Wheels • Grinding Machines • Refractories • Electrochemicals
In Canada: Behr-Manning (Canada) Ltd., Brantford. For Export: Norton Behr-Manning Overseas Inc., Troy, N. Y., U.S.A.



For information about any advertised product, see the Advertisers Index and Action Card inside back cover

*Reception room greets visitors with marine atmosphere at Atlanta Boat Company. Mahogany paneled walls are of same material as used in boat hulls. Real brass port holes and pilot wheel clock over typical bulkhead doorway all contribute to the salty theme. Entire office actually is an enclosed upper deck of production floor but level with street out front. Door opens onto catwalk leading out to control tower at center of building.*

natural wood finished areas then get a sanding with coated abrasive on circular sponge rubber disc mounted on a Skil electric hand sander operating at 1400 r.p.m. The abrasive disc is a 180 grit Carborundum silicon carbide coated paper with pressure sensitive adhesive backing to make it adhere to the sponge rubber pad.

After this basic build is prepared, a final coating of epoxy is applied and dried without rubbing to produce a very high gloss in the final finish. This "bright finish" has brought many favorable comments from dealers and customers who appreciate a natural wood finish.

Painted finishes, whether of the all-over type or as trim panels to contrast with natural wood sections, follow essentially the same steps except for final coatings. Instead of the second or final varnish coating, white sanding primer of a lacquer type is used to help detect any minor blemishes. Small checks or grain defects will show up immediately through this brilliant white surface. These may require minor correction, or usually will disappear in the disc sanding (with the sponge rubber pad) which follows.

Next comes white acrylic enamel in the principal areas and up to trim lines in two-color finishes. The trim line is not masked for this white coating. Instead, the remaining unfinished trim color area is merely cleaned up by hand sanding to reduce surplus overspray.

Masking is done, however, to protect the white when the acrylic trim colors in red, yellow or blue are applied. Basic color styles developed by this system and simultaneously through the same booths are red and white, blue and white, or combination natural mahogany with color panels and yellow trim line.

DeVilbiss double pressure tanks are seen at the spray booths, but the shop does not use the double tank system for mixing resin and catalyst materials. Instead, resin and catalyst are pre-mixed in the same tank, the different colors or clear material. This is done to comply with the extreme flexibility program, allowing for large volume or small volume runs at any time.

Formulations are made so that the catalyzed materials have a normal pot-life of eight hours and will not readily set until heat is applied in the drying ovens. Only moderate quantities are mixed in one batch. Material left over from a day's run is stored under refrigeration until the next day when it will be used up promptly on the first units.

Of course, when catalyst is mixed with resin in the same tank, the entire system, tanks, hoses and guns, must be thoroughly cleaned at the end of a run. But this drawback has not been found to be a handicap in view of the flexibility otherwise obtained.

Since flexibility was of primary concern throughout the plant, some sacrifice of either economy or efficiency would be expected. However, the company has found such sacrifice to be very nominal in view of benefits to be gained.

For one thing, there was no space available to add an entirely new kind of line except in that part of the building allotted to storage. Therefore, fewer units had to be stored at any one time. The warehouse section of the building is the same size as the assembly and finishing room, 75′ x 300′. Because of the way the boats are stacked, standing on the transom end, the plant has been able to store as many as 1200 boats at one time.

Better utilization of warehouse space could be applied to production if storage could be eliminated. That was the origin of such a compulsive need for flexibility in production volume. Volume now can be shifted from 8-32 boats per day, and working force can range from a key skeleton force of 50 permanent employees up to a busy beehive of 200, all according to trends of the season. Now there is no need to stockpile in off seasons to fill seasonal demands later. If business is good, the production line can hum. If it is slow, volume can be reduced. In either event, only a moderate backlog can take up the slack or surge as orders come in.

It was interesting to learn that none of this would have been feasible without some pretty shrewd engineering planning, and the elimination of a bottleneck in the finishing department. Have you such a bottleneck in your finishing department which, if changed, might introduce sadly needed flexibility in your own operations?

*Announcing the...*

**Sixth Annual**

**AWARD OF MERIT**

**Citations**

**Awarded by**

**HITCHCOCK'S**

# WOOD WORKING

Here is your opportunity to nominate some organization for an award of merit based on significant contributions to the promotion or utilization of *wood* during 1958.

***You may use*** **this form to nominate your own organization or some other company, association or institution in any one of the four classifications shown. Nominations must be received by March 15, 1959. Awards will be made at the National Meeting of the Forest Products Research Society in June in San Francisco.**

## NOMINATION FORM

Hitchcock's WOOD WORKING
Wheaton, Illinois

I hereby nominate for a 1959 Award of Merit

Organization_____

Address_____

City_____ State_____

. . . suggesting this organization for an award in the category checked:

☐ Producers or manufacturers of wood or wood products
_____with less than 100 employees
_____with 100 or more employees

☐ Associations

☐ Public institutions and universities

☐ Suppliers of equipment or supplies used by wood products manufacturers.

**NOMINATIONS MUST BE RECEIVED BY MARCH 15, 1959**

Your name_____

Organization_____

Address_____

City_____ State_____

# FINISHING CLINIC

## What Causes Blistering and Pinholing Here?

*We recently changed over to a faster drying lacquer sealer to permit a better build in the sealer coat without changing our conveyor speed. This sealer is applied in a wet double-pass coat and is dried while traveling through a baking oven at about 110°F. A number of troubles have developed since this change-over, including brittle top coats, with poor adhesion characteristics, difficult sanding, and blistering and pinholing. Can all these troubles result from the change-over to the faster drying sealer?*

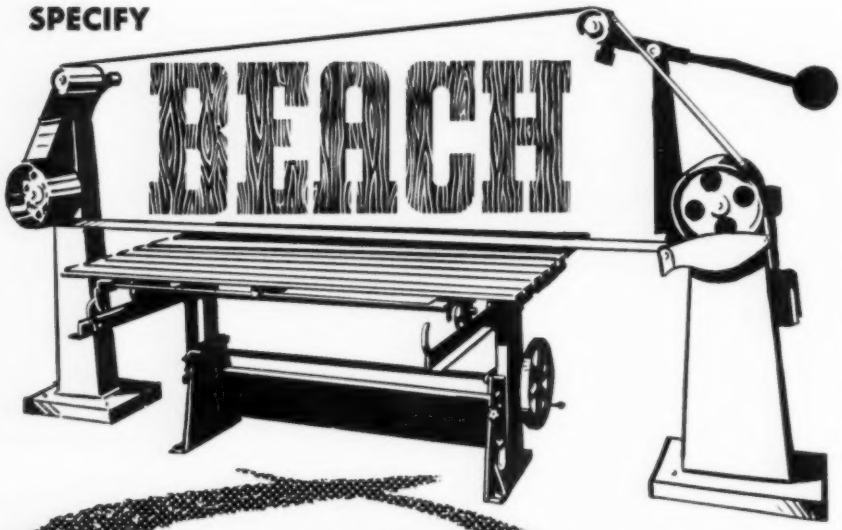
The primary function of the lacquer sealer is to seal the wood pores to prevent the natural suction of the wood which could operate to break up the finish film and cause it to fail in service. It is designed to provide a smooth unbroken surface for the top coats to be applied over the sealer. It is also important that the solvent in the sealer evaporate rapidly after the sealer coat has been sprayed on to prevent any solid film-forming material from being absorbed in the wood. The sealer should have a low solvent retention to ensure the solvents will leave the finish film as soon as possible and completely before sanding and spraying the top coats.

One cause of your troubles may be applying so much sealer that you are flooding the surface. While sealer is best sprayed in a full wet coat, it should never be flooded. If the surface is flooded with sealer, it will dry rapidly but the trapped solvents tend to work down into the filler to loosen it. This causes poor adhesion of the top coats and usually make them brittle. Solvents which are prevented from working downward through the sealer eventually work up through the finish coats to bubble, blister and pinhole the finish film.

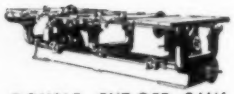
Unless sealer dries extremely slow, slow-drying is not a fault. In fact, this type of sealer provides better toughness and penetration although the build may not be as great as faster-drying sealers. In this connection, sealer should not be used to build up the finish film. Its function is to provide good building of sealer and top coats into a durable finish film by perfect sealing and good adhesion, not by sealer film thickness.

To achieve faster drying, your sealer probably is formulated with rapid drying solvents. If this drying action is too fast, a brittle film may be produced because the sealer is not afforded sufficient time to secure a firm hold in the wood by required penetration of the filler and or wood fibers.


SPECIFY




HAND BLOCK
BELT SANDER



DOUBLE CUT-OFF SAW

TILTING TABLE SAW

SHAPER

Designed and built to give uninterrupted, trouble-free service, this versatile machine solves a variety of finishing operations – for sanding and finishing wood products; and for products made from aluminum, brass, bronze, stainless steel and plastics. Sturdily built, 42" x 80" table mounted on anti-friction rollers; standard 2 HP, 2 or 3 phase ball-bearing motor.
The Beach Hand Block Belt Sander is already in use by over 1000 leading industrial firms! You will be amazed at the economical, efficient operation . . . the initial low cost!

BEACH
MANUFACTURING CO.
MONTROSE, PA.

*Write today-*
for full details on Beach Hand Block Belt Sanders and the complete line of Beach woodworking machinery.

The sanding difficulty may be caused by the use of too high solids in the sealer. Most finishing authorities recommend a solids content in a range of 12 to 18% for best results. Difficult sanding also results from failure to keep the sealer properly agitated. If this is not done, the sanding agents (stearates) have a tendency to settle. Sealer sprayed from the top will take longer to dry and is hard to sand. Sealer sprayed from the bottom may powder off to expose the surface beneath in sections and afford insufficient adhesion to the top coats to eventually cause the finish to peel and otherwise break up and fail.

The occurrence of bubbles, blisters and pinholing indicates that your sealer is drying too fast, as these faults are usually caused by trapped air. The sealer should be formulated to remain wet long enough to allow trapped air to escape from the film and permit proper leveling of the finish film. Blisters may also occur at the baking oven if sufficient flash-off (air drying) time is not allowed to permit the bulk of the solvent to evaporate. Your drying temperature appears to be correct for sealer and a relative humidity of 30 to 35% is recommended for this drying temperature. Even with a slower drying sealer, this drying time should not exceed 20 minutes at this temperature. The flash-off period should be 5 to 10 minutes and the sealer coat should be permitted to cool in the air from 10 to 15 minutes before sanding.

Spraying pressure should not exceed 55 lbs., preferably 40 to 50 lbs., at the gun and 10 to 20 lbs. pressure at the pressure feed material tank. Excessive pressure at the spray gun has a tendency to blow out of the sealer those ingredients required for proper flow and leveling action. The full coat prescribed for spraying sealer is essentially just that amount of material that will hang on a vertical surface.


**Technical Series Booklets**

| No. | | Price |
|---|---|---|
| 101 | **Glossary of Adhesive Terms** — Twenty pages of adhesive terms used in the woodworking industry. | 25c |
| 103 | **Electronic Gluing** — A comprehensive survey of electronic gluing applications covered in this 80-page booklet. | 1.00 |
| 104 | **Types of Plywood** — The various types of plywood; manufacture of and utilizations. | 1.00 |
| 107 | **Cutting Techniques for Woodworkers** — Fundamentals as to how different tools function in separating fibers of wood. 50 pages. | 50c |
| 108 | **Furniture Finishing** — A series of articles covering all phases of furniture finishing—from abrasives to polishing operations. | 1.00 |
| 109 | **Particle Board is Not a Cheap Substitute For Wood** by Darrell Ward. | 25c |

Name .....

Address .....

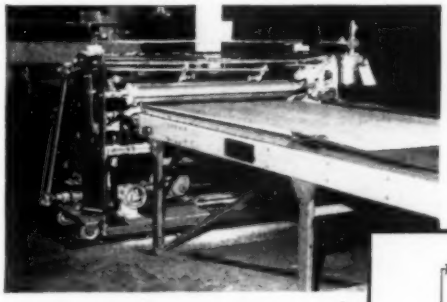
Order by number: .....

Amount Enclosed $.....

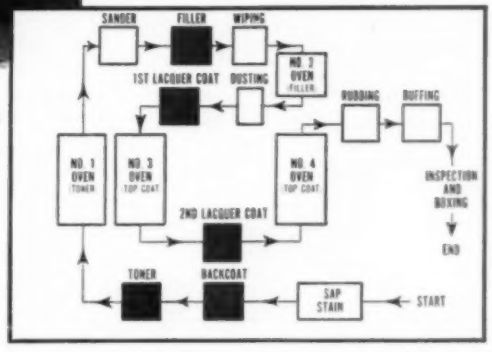
**Hitchcock's**
**WOOD WORKING**
**Wheaton, Illinois**



# 150% Increase in Production of Prefinished Plywood Panels!



**5 GASWAY Rollacoaters are used in U. S. Plywood's New Automatic, Quality Controlled Production Line.**




**Steps in the automated prefinishing operation at the Orangeburg, S. C. plant of U.S. Plywood Corporation. Gasway Rollacoaters are solid black in this diagram for easy identification.**

United States Plywood Corporation, a pioneer in the manufacture of prefinished plywood has found a method for boosting production potentials. Its new prefinishing line, which uses the Rollacoat method, has provided the added capacity and also gives an excellent prefinishing job.

Five Gasway Rollacoaters are incorporated into this prefinishing line: used for backcoating, applying toner to seal sap stain, filler, and two lacquer applications. At stations where color may be changed, as in toning, a number of Rollacoaters are mounted on casters for quick change to suit production schedules. Each loaded with a different color.

Extremely high quality finished panels take only 97 minutes to travel from raw panel to final packaging. Another example of automation in action—with Gasway coaters.

**INFORMATION AVAILABLE**—Gasway will send you full details on Rollacoating. Regardless of your production requirements, large or small, there is a Gasway coater to fit the job. Send for the whole story.

GASWAY CORPORATION
6463 North Ravenswood Ave.
Chicago 16, Illinois

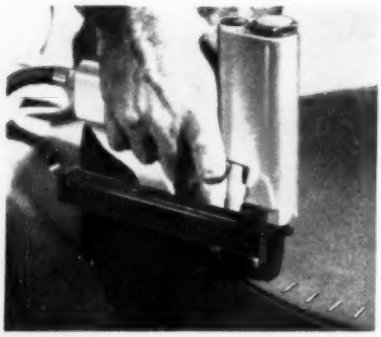
LOOK TO GASWAY FOR EFFICIENT, HIGH PRODUCTION COATING OF STRIP, SHEET OR PANELS

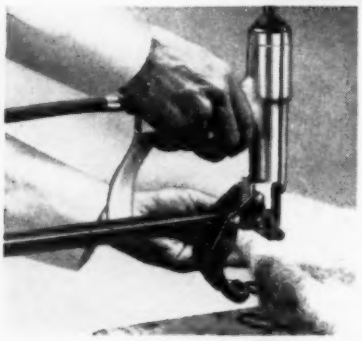
# Old methods never get you too far

**HAVE Senco DEMONSTRATE FASTENING ECONOMY THAT MAINTAINS QUALITY**

**reboundless for hardest materials**

Operator not constantly correcting for impact of previously fired staple — more staples precisely driven in less time.



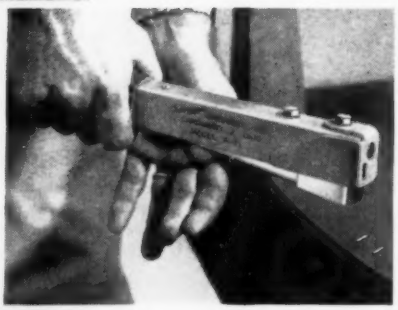


**portable sisal stapling**

Jaw leverage with "vise like" grip working with new valve and dual piston makes for little or no maintenance.

**economy hammer tacker**

Drives and feeds automatically. Inexpensive stapling, where air supply or limited usage is a problem.



**Senco**
PRODUCTS INC.
5566 WOOSTER PIKE
CINCINNATI 27, OHIO

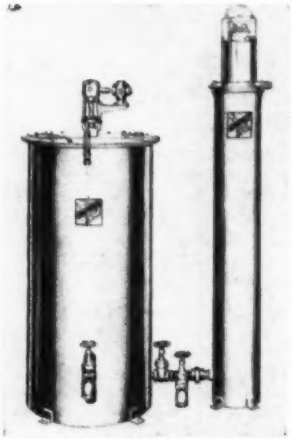
**Test in your plant no obligation . . .**

Sales and service all principal cities U.S.A., Canada and Europe.


## Extra High Volume Paint Circulation Possible With This Pump

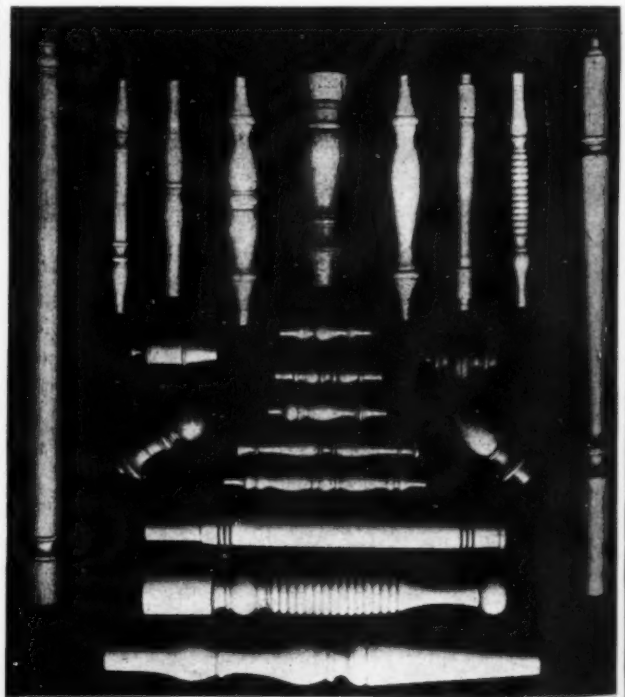
For extra high volume paint circulating systems. the Binks Manufacturing Co., has developed the "Kayo" series of paint pumps. The new pump is designed to deliver 32 oz. of paint wtih each stroke, or one gallon every two cycles. It is capable of supplying up to 55 spray painting stations.

All of the pumps in the series feature the automatic demand principle. When demand on the system is low the pumps operate more slowly, but when more spray guns are opened the pumps speed up immediately to supply more material. Air consumption with new pumps is 2 c.f.m. per gallon at delivery pressure of 80 p.s.i.



*Kayo 32 paint pump in standpipe (right) mounted next to 60 gal. air agitated circulating tank.*

Because the new pumps are designed so that air motor and pump section are completely separate there is no possibility that paint will enter air motor and cause malfunction or damage. Other features include self-lubricating air motor

**H.G.WINTER & SONS, INC.**
KINGFIELD, MAINE
*Established 1885*

piston cups, high density alloy pump castings and double tube construction for permanent rigid alignment.
**Manufacturer: Binks Manufacturing Co., 3122 Carroll Ave., Chicago, Ill.**

Use postpaid card. Circle No. 1

## Cascade Offers New Board

A board material for industrial and manufacturing uses that machines very well is Lebanex, a product developed and marketed by Cascades Plywood Corporation, Lebanex Division, Public Service Bldg., Portland 4, Oregon

The particular value of Lebanex in manufacture lies in the fact that saw cuts, dado cuts, shaper cuts, hole drilling, etc., produce a clean, square-cut edge, without fuzzing or splintering. This high grade machinability is due to its composite structure of top grade, jointed veneer core, surfaced on both sides with Cascades Lebanite hardboard. Lebanex is especially good for making manufacturing templates.

The material is available in four grades, in thicknesses from ½" to 1½". Top grade Lebanex is surfaced with PL90 Lebanite, a special high density hardboard. Other grades are faced with standard L30 Lebanite. All grades have a high degree of resistance to both heat and abrasion, and may be used for interior or exterior work. Exterior-type, phenolic-resin glue is used throughout the Lebanex line, and the panels will not delaminate in subsequent hot-pressing processes.

Lebanex is recommended for table tops, sink tops, furniture, cabinet work, wardrobe doors, drawer fronts, case goods, etc.; and in industrial plants is used for bench tops subject to hard wear, for tool boards, partitions, and even flooring. The surface takes any kind of paint or finish, without leaving "dry" spots.

A four-page color folder describing the grades and properties of Lebanex is available from Cascades Plywood Corporation

Use postpaid card. Circle No. 2

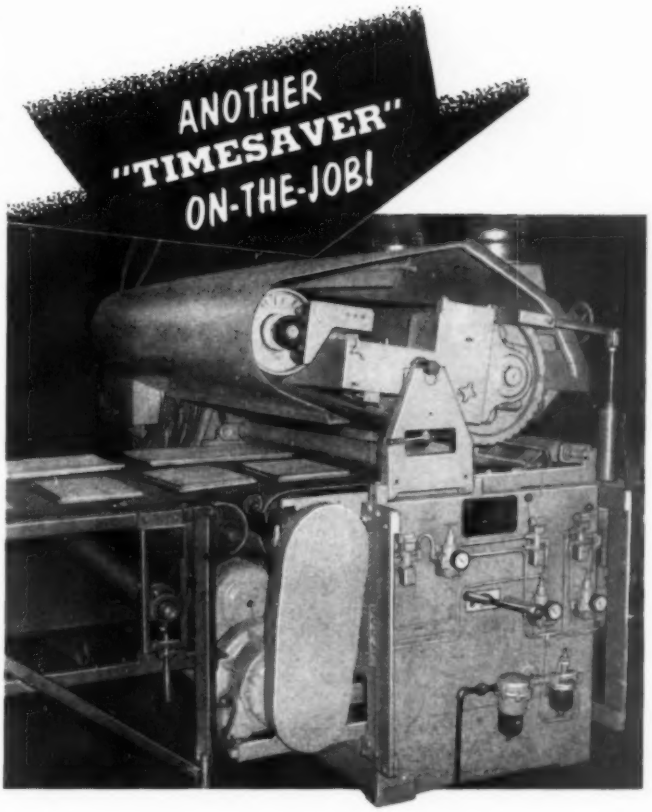

# Better Performance
*at lower cost!*
# Randolph
HOT SPRAY
WOOD LACQUER NO. 21

**Use the hot-spray process for a fast-drying highly-serviceable finish! Hot-sprayed lacquer makes your product look better at less cost, and gives you all these additional advantages: Fast application with smooth, glossy or satin finish . . . No extra solvents . . . Solids are higher . . . Better flow-out covers imperfections . . . Protects against sag, blush, or orange peel.**

*Write for complete information today!*

**Randolph Products Co.**
Dept. W Carlstadt, N.J.






**The H. J. SCHEIRICH CO., INC., Louisville, Ky. uses 2 Model TOP-50 . . .**

**TIMESAVER SPEEDBELT* SANDERS**
**. . . in conveyorized cabinet door and panel finishing line.**

The 2 Timesaver Model TOP 50 "Speedbelt" Sanders are an important and integral part of the H. J. Scheirich Company's new conveyorized production line. By conveyorizing material flow and utilizing the production sanding techniques made possible with "Speedbelt" Sanders, they were able to set-up to produce 800 more panels and doors per shift while using only one-half the finishing materials formerly required.

Scheirich Company and Timesaver engineers developed a special feeding mechanism for the Timesaver "Speedbelts" that enabled feeding and sanding of panels of various thicknesses through one machine without adjusting the machine.

This is only one of the many examples of installations throughout the country where Timesaver Sanders built into production lines are achieving savings in labor and materials while producing the desired top quality finishes. You, too, can enjoy the advantages of wide abrasive belt sanding in your shop at a minimum cost . . . Investigate the application of Timesaver "Speedbelt" Sanders to your sanding and finishing problem.

***Write today*** — send for free literature and prices.

*Pioneers in wide belt sanding for the woodworking industry*
**TIMESAVER SANDERS**
P. O. Box 7446, Robbinsdale Station
Minneapolis, Minn.

# NEW WHITNEY

## S-205

**A FINE CLOSE TOLERANCE**

**Single Cabinet Planer**

**24"**
**30"**
**36"**

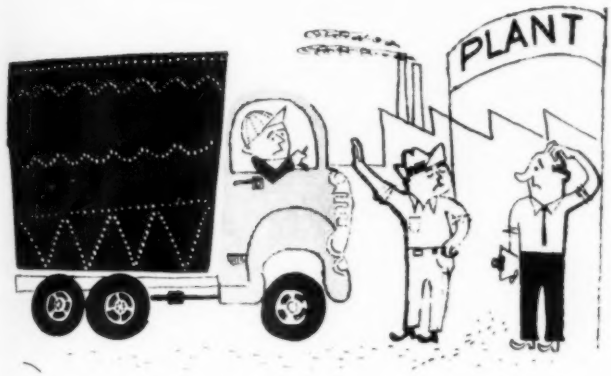
ALL GEARED FEED WORKS • 5" DIAMETER ROLLS • HINGED CAST DOORS ALLOW INSTANT ACCESS TO ALL MOVING PARTS • VARIABLE FEED 25-75 F.P.M. WITH MICRO SELECTOR AND DIAL INDICATOR SHOWING SPEED IN ACTUAL FEET PER MINUTE • DIRECT SHAFTLESS MOTORS UP TO 30 H.P. • 5" CUTTING CIRCLE AND DUAL RAISING SCREWS ON 30" AND 36" MACHINES • UP TO 3/4" DEPTH OF CUT • Available: Micro simultaneous lower roll raising adjustment • Micro simultaneous pressure bar adjustment • Micro dial for accurate setting of bed • Power hoist for bed • One shot lubrication • Automatic Grinding Device • Extra horse power shaftless motors to 30 H.P.

WHITNEY QUALITY PROGRESSIVENESS EXPERIENCE EST. 1937

*WRITE FOR FULL DETAILS AND SPECIFICATIONS*

**BAXTER D. WHITNEY & SON, INC.**
**Greensboro, North Carolina, U. S. A.**

A roundup of day to day in-plant problems and how they were handled by management men. Each incident is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to Hitchcock's WOOD WORKING.




*Does a truck driver have to "be nice" to customers?*

### What Happened

Joe Grady drove a truck which delivered the company's merchandise to dealers, but he was never one for "cozying up" to customers. "I'm just a truck driver. My job is to deliver merchandise. Let the salesmen build the good will. I'm no social butterfly."

The company paid no attention to this repeated attitude until it received complaints from three dealers who charged that the driver was curt and often downright rude.

Joe was warned twice, and when another customer complained, Joe was fired. He immediately went out and got 30 letters from customers who said he was "okay." The company refused to accept these as evidence. The case went to arbitration, with the company contending that a truck driver has a "public relations" responsibility to build good will among customers.

**Was the Company Right ☐ Wrong ☐**

### What Arbitrator B. Borchardt Ruled

"Numerous letters obtained by Grady indicate that there were many instances where he has been well accepted. It nevertheless remains that there are a number of specific instances of discourtesy and disrespect to dealers and store managers, and insubordination towards his superiors. The letters of commendation cannot neutralize the complaints; nor do they reduce the effects of the complaints. The merits of this case must be decided on the basis of the complaints which brought about the discharge. The very life of a free economy is dependent upon good will between supplier and customer. A truck driver delivering merchandise to a customer is a representative of his firm, no less than the person classified as salesman. He creates and builds good will or ill will, depending upon his personal actions and attitudes. The discharge is sustained."

*Does management have a right to "crack down" on employees parties?*

### What Happened

The department (almost all women) was getting "party happy." Every time an employee had a birthday, or got engaged or married, or went on leave, they chipped in and had a celebration—usually during lunch hour. It was getting so that it interfered with work. So the supervisor posted a rule—in effect— *no more parties.*

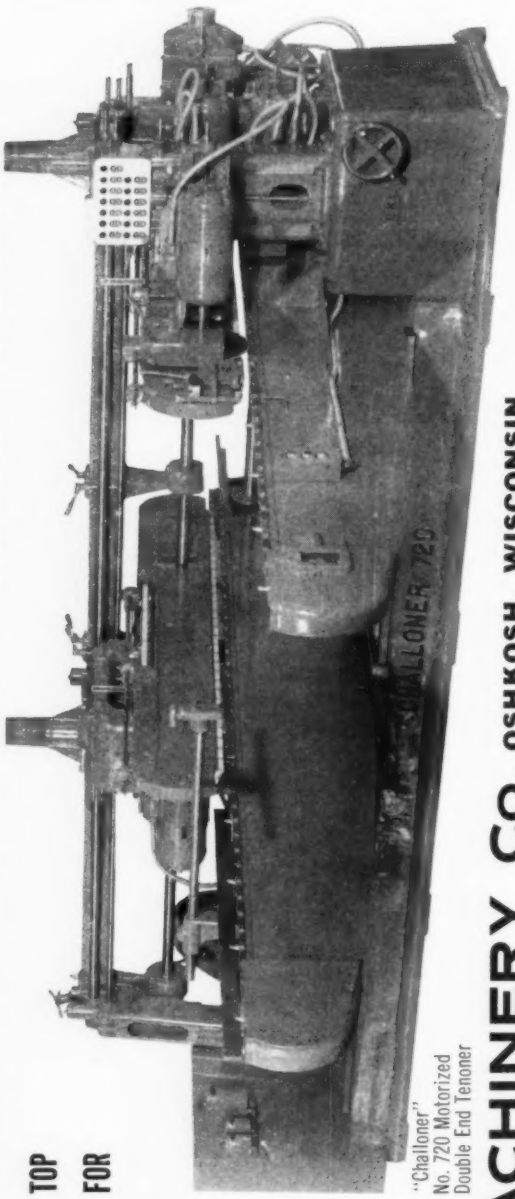
One day Nancy Heller approached the foreman and asked if they could use the coffee break one day the following month to bid goodbye to an employee on maternity leave.

The answer was "no." Nancy repeated her request a week later and was again turned down. Persistent girl—she tried again and was refused again. Yet early next month a party was held—except that there were no decorations. Gifts were placed near the lady's machine during the coffee break, and the girls all watched her open the presents.

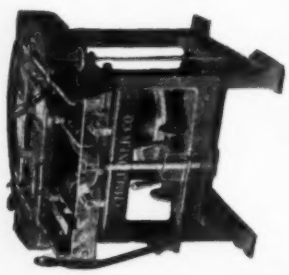
The supervisor didn't interfere as he didn't want to embarrass them. Later he called Nancy in and told her she was fired for refusing to heed his rule against parties. Nancy claimed:

the Hallmark of QUALITY since 1863...

YOU WILL GET TO THE TOP AND LEAVE NO ROOM FOR ARGUMENT By using CHALLONER Machines



"Challoner" No. 720 Motorized Double End Tenoner



*When you Manufacture*

Sash, Doors, Panels, Dimension Cut Up, Louver Doors, Blinds, Kitchen Cabinets, Case Goods, Furniture

*Manufactured by* **C. K. L. MACHINERY CO.** OSHKOSH, WISCONSIN


- I didn't plan the party. It was spontaneous.
- Why single me out for punishment? There were 25 others there.
- Firing is too severe for a good employee like me.

The supervisor defended his action:

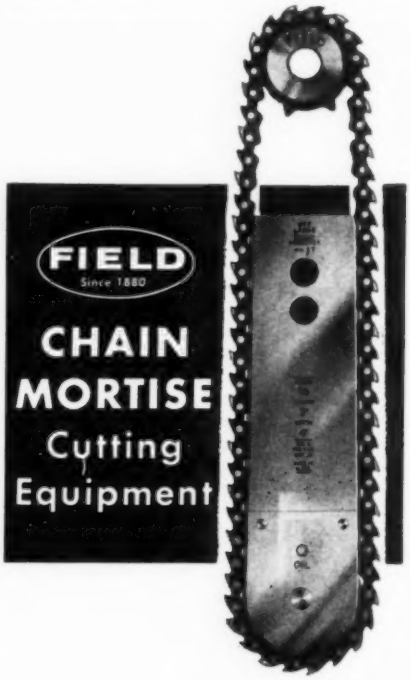
- I told Nancy "no" three times. How much more warning did she need?
- It was obvious that she was the leader.
- We must put a stop to parties as it is interfering with production.

**Was the Company Right ☐ Wrong ☐**

**What Arbitrator C. A. Warns, Jr., Ruled**

"I cannot find that the dismissal was justified. (1) Nancy was no more guilty of violating a rule than at least 25 others. (2) No other employee was disciplined in any way. (3) Nancy had a good record and was a competent employee—she had never been disciplined before. (4) The offense itself was not sufficient to warrant dismissal.

In our experience an infraction of this small dimension rarely calls for more than a minimum discipline. Some disciplinary action may have been in order, but we are not convinced it was proper to single out Nancy. We require the company to offer her immediate reinstatement with no loss of seniority or other rights."

*YOUR best bet for low maintenance*

FIELD Since 1880

**CHAIN MORTISE Cutting Equipment**

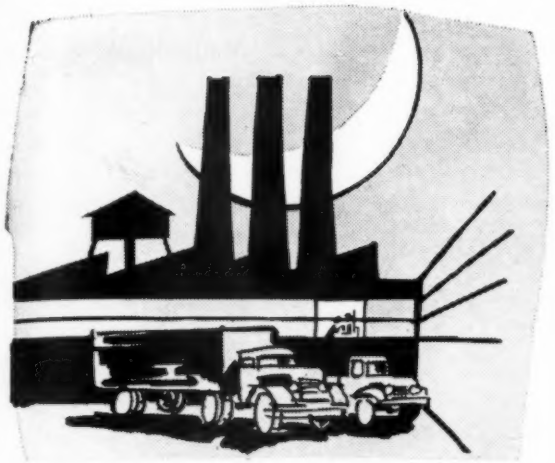
Our high-quality Chain Mortise Cutting Equipment insures maximum production and minimum maintenance. Over 150 available sizes for both round and flat-bottom mortises.

Large stock permits immediate shipment of most sizes.

**WILLIAM H. FIELD CO., INC.**

SINCE 1880

332 Dorchester Ave., Boston 27, Mass.



*Can a company subcontract work in order to save direct labor costs?*

### What Happened

To save money, the company decided to eliminate its trucking and turn deliveries over to an independent contractor. Fifteen drivers lost their jobs. The union immediately took the issue to arbitration, arguing:

- These drivers were members of the union and their jobs cannot be subcontracted.
- The company is weakening the union because it has lost 15 protected jobs.
- If this goes on, the company can, in effect, break the union by subcontracting other jobs.


**MISTKOP** STOPS MIST

COLLECTS MIST-FOG EFFECTIVELY IN A SMALLER SPACE

This efficient Mistkop unit provides low-cost mist control for all machining operations employing coolants or lubricants. Requires no duct work or costly piping—*is actually portable!*

Mistkop is sturdy in design—has a minimum number of parts and gives long, trouble-free service. Stops clouding of lights . . . eliminates fire hazards of uncontrolled mist. Write for detailed description.

**AGET** Manufacturing Company
1392 Church Street • Adrian, Michigan



# You get MORE for LESS with DURO POWER TOOLS

## COMPARE and see . . .

| Specifications | Duro | Brand "A" | Brand "B" |
|---|---|---|---|
| Table Size with Ext. | 33"x38" | 27½"x35" | 32½"x50½" |
| Arbor Diameter | 5/8" | 3/4" | 5/8" |
| Depth Cut 90° | 3¼" | 3⅛" | 3⅛" |
| Depth Cut 45° | 2-7/16" | 2⅛" | 2⅛ |
| Maximum Distance Blade Fence | 25½" | 25" | 25" |
| Distance Ahead Blade | 14¾" | 12½" | 13" |
| Number Belts | 3 | 2 | 3 |
| Mitre Gauge Control | Yes | Yes | No |
| Price | $325.00 | $335.00 | $334.50 |

The chart above gives a quick, capsule picture of Duro's circular saw superiority when compared with 2 nationally advertised models. This superiority is equally evident when the **entire** Duro line of power tools is compared with **any** of the leading makes. Duro Tools offer an exclusive "built-in" rigidity, a lifetime ruggedness, "years ahead" design, unique safety features and precision accuracy that's unduplicated! If you're searching for finest quality, outstanding performance AND PRICE—Duro is your best bet.

The complete Duro line includes circular saws, drill presses, band saws, scroll saws, sanders, lathes, jointers, routers, plus a full line of accessories. Write for the comparative facts today!

**Send for FREE catalog of power tools and Comparative Chart**

**DURO METAL PRODUCTS COMPANY**
**2685 N. Kildare Ave. Chicago 39, Ill.**

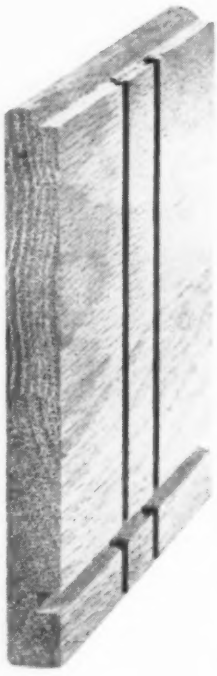
# IF IT'S...

# OAK

## get the PLUS of W-B Precision Wood Parts

PRECISION WB WOOD PARTS

To produce a *fine finished product*, you must start with a *fine raw material*. In the case of Hardwood Dimension, that material is lumber—and very often oak.



*Williams-Brownell Precision Wood Parts are made of the finest oak available!*

It is Appalachian oak—from the Great Smoky Region of the Appalachian Mountains where the texture and grain required for proper machining, finishing and fabrication *are grown right into it!*

Every board foot is properly and uniformly kiln dried. The oak is especially selected for the type of product for which it is to be used, and precisely manufactured to your exact specifications.

Build finest quality into your home and church furniture, Hi Fi and TV cabinets, store and bank fixtures. Get the PLUS of W-B *Precision Wood Parts.*

Let us quote on your requirements. Send specifications to: W. D. Soderquist, P. O. Box 1091, Asheville, N. C.

HARCO

WILLIAMS-BROWNELL Inc.
ASHEVILLE, NORTH CAROLINA
ESTABLISHED 1905


The company counter-argued:

- We subcontract in order to save money. That's a management responsibility.
- By saving money on unprofitable operations we strengthen the company and make union jobs more secure.
- We are not weakening the union by doing things that will make us more efficient.

**Was the Company Right ☐ Wrong ☐**

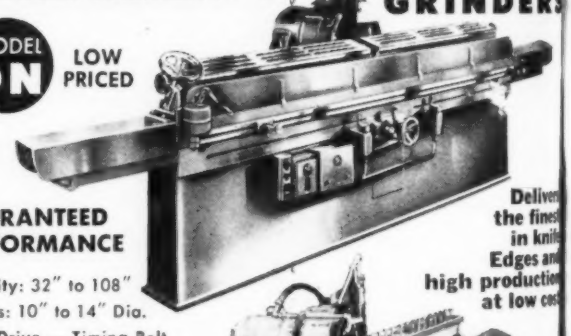
**What Arbitrator Arthur Stark Ruled**

"Arbitrators generally hold that management has the right, if exercised in good faith, to subcontract work to independent contractors unless the agreement *specifically* restricts that right. This would include utilization of labor-saving devices, shutting down departments, moving the plant, changing facilities to accommodate new items of manufacture. The company's primary reason for its existence, from its point of view, is to make a profit. The question before this arbitrator is: can a company, instead of varying its operating methods, change its procedures for merchandising its products without violating the agreement? The answer is 'yes.'

"Of course, a company cannot use 'economies' as an excuse to avoid obligations where those economies *do not exist*, and are merely an excuse to hurt the union. However, this is a charge that must be proved. I find for the company."


HANCHETT KNIFE GRINDERS

MODEL DN LOW PRICED



GUARANTEED PERFORMANCE

Capacity: 32" to 108"
Wheels: 10" to 14" Dia.
Table Drive — Timing Belt with Elec. Reversing Motor
Motor — 3 H.P.

Deliver the fines in knife Edges an high productio at low cos

DEALER INQUIRIES INVITED

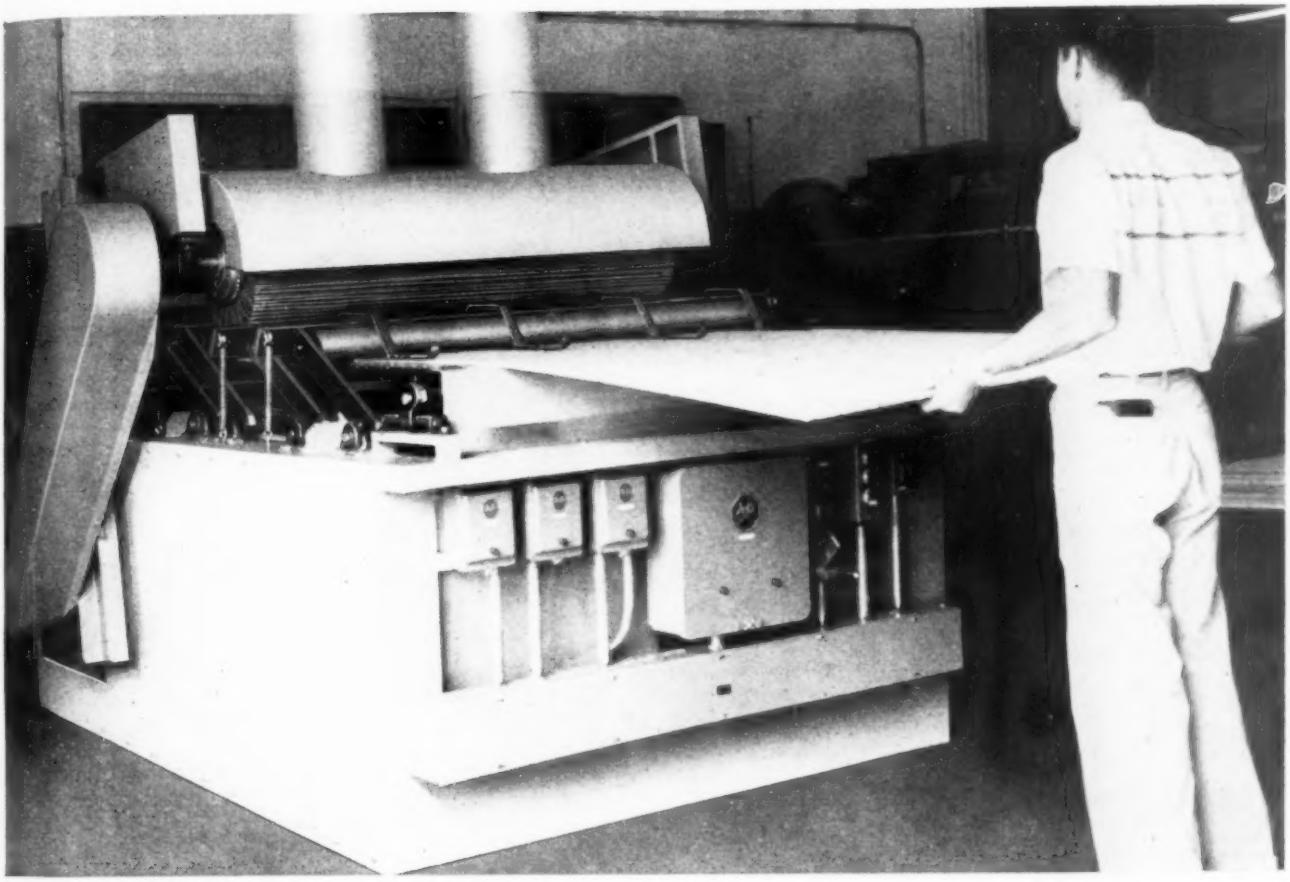
MODEL GK HEAVY DUTY

Capacity: 32" to 19
Wheels: 14"—16"—20" D
Motors: 3 to 15 Horsepow
Table Drives: Mechanical—Electric—Hydrau
Precision Built—accurate—rugged and qu

HANCHETT MANUFACTURING CO.
Main Office: BIG RAPIDS, MICHIGAN
West Coast: PORTLAND 1, OREGON

# HOLD IT!

**IF YOU HAVEN'T BOUGHT A SANDER FOR THAT PRE-FINISHED PLYWOOD LINE — OR FOR THAT SANDING-POLISHING APPLICATION ON PRE-SEALED OR RAW BOARD— DON'T MAKE A MOVE UNTIL YOU INVESTIGATE THE *NEW* MERIT FLEX-DRUM SANDER.**



**Stock may be manually or conveyor fed.**

Nothing like it. It sands, smooths, polishes surfaces up to 60" wide—removes "nibs", raised fibers, roughness—leaves a "hand-rubbed" quality surface—abrasive will not load up on coatings—single unit sanding roll (the brand new Merit Flex-Drum) leaves no parting lines; has a unique spaced-leaf design that produces a remarkably resilient, smooth, abrasive-brushing action. This controlled resilence enables the Flex-Drum® to "wipe" depressed areas of the surface without cutting through on high spots. You can work very thin veneers or coatings with no danger of sand-through.

**—YOU CAN ACHIEVE THE BEST FINISHES IN THE BUSINESS WITH THIS NEW EQUIPMENT.**

**—AND YOU CAN DO IT AT REMARKABLY LOW COST.***

Flex-Drum units are now working in top plants across the country as individual units, or integrated into production lines on both pre-coated and raw surfaces with unmatched results. These people investigated everything on the market before they bought. So should you.

**The first Flex-Drum installation has been in operation for over five months in sanding pre-sealed particle board —and the original loading still has a long way to go. It has finished virtually millions of square feet of surface— without reloading or adjustment of any kind.*

## MERIT PRODUCTS, INC.

*FIRST CHOICE IS ALWAYS A PRODUCT OF MERIT*

**3691 Lenawee Ave.**

**Los Angeles 16, California**

*Write us for information.*

*For 15 yrs. mfgs. of special abrasive equipment.*

*Manufactured exclusively by Merit Products Inc.*



**For information about any advertised product, see the Advertisers Index and Action Card inside back cover**

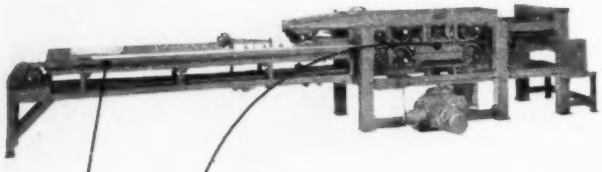
# NOW...

An "in-line" continuous feed Electronic Finger Joint End-Gluer. Completely cures adhesives at high speeds better and faster than any previous method.

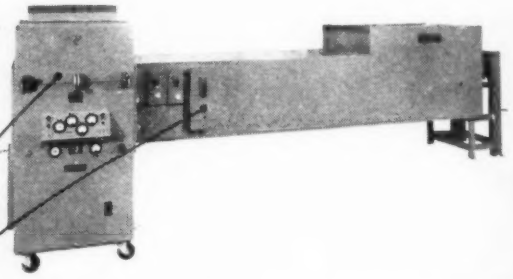
**Mann-Russell Electronic**

## *Continuous* FINGER JOINT END-GLUER

- ★ AUTOMATED straight line operation . . . no side transfer of material until after glued and sawn to length.
- ★ Traveling cut-off saw adjustable for any length of stock.
- ★ Most economical method of recovery of shorts, waste material or degrade.

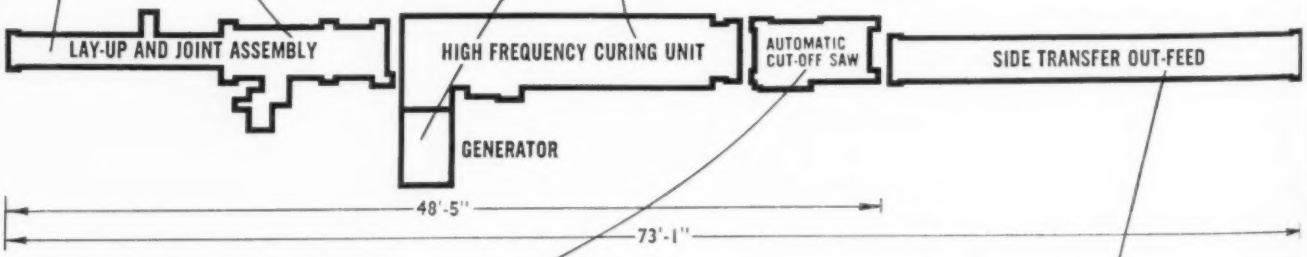


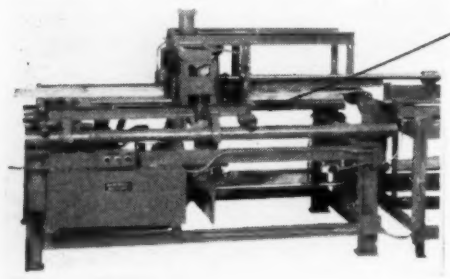
**LAY-UP AND JOINT ASSEMBLY UNIT** V-belt drive and positive retard assures tight fitting of finger joints before entering curing unit.



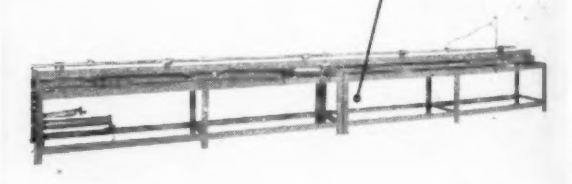
**GENERATOR AND STANDARD HIGH FREQUENCY CURING UNIT.** Mann-Russell Model 700 Generator and Electrode section. New patented electrode, adjustable from 3 through 12 inches to 8/4 thick stock. Other sizes special order.

## FLOOR PLAN LAYOUT



**AUTOMATIC TRAVELING CUT-OFF SAW UNIT.** Quickly and automatically cuts stock to desired length as it leaves curing unit.



**SIDE TRANSFER OUT-FEED TABLE UNIT.** Optional equipment custom built to length and with air ejection or belt side transfer.

***Complete details available from . . .***

**MANN-RUSSELL ELECTRONICS**

**SO. 23rd & PACIFIC AVE., TACOMA 2, WASH.**

**Phone: FUlton 3-1593**

*Cutterhead manufacturers must obviously be equipped with highly-efficient dynamic balancing equipment, to insure that every cutterhead they ship will be practically perfect in this respect. Here is special dynamic balancing equipment in use on a finger-jointing head at Wisconsin Knife Works, Beloit, Wisconsin. Observe how the mandrel on which the fast-revolving cutterhead is mounted is supported by pairs of rolls at the end. Such equipment provides means both for finding the actual amount of unbalance in given planes, and for locating it angularly or radially, so that highly sensitive correction can be made.*

# CUTTERHEADS MUST RUN SMOOTHLY

By John E. Hyler

▼ The concept of smooth operation is inevitably associated with the idea of proper balance in rotating machine parts. Indeed, smooth operation is the purpose of balancing. This is important in any fast-revolving component, but far more so where fast-revolving woodworking cutterheads are in use. Whenever a cutterhead can be made to function smoothly, important advantages are gained entirely aside from the fact that the smallest possible amount of operative strain is present.

Dynamic balance is always involved. The longer the cutterhead being dealt with, the more important such balance becomes. It is often referred to as "running balance." In factories where woodworking cutterheads are made, either in their own right, or as components of machines being built, dynamic balancing is a highly important part of the manufacturing process. Different kinds of balancing machines are used in various plants. In every case, however, actual balancing has to do with redistribution of weight (usually very slight) in the rotating cutterhead, in such manner as to eliminate vibrations in the cutterhead itself, and at the bearings.

Proper cutterhead balancing will eliminate excessive wear in the bearings. Balancing allows a cutterhead to run smoothly, eliminates noise, and increases over-all mechanical efficiency of the machine. Further than this, however, it provides for smooth cutting. A cutterhead that is out of balance cannot do a really smooth job.

## Knives Must Be Fitted Carefully

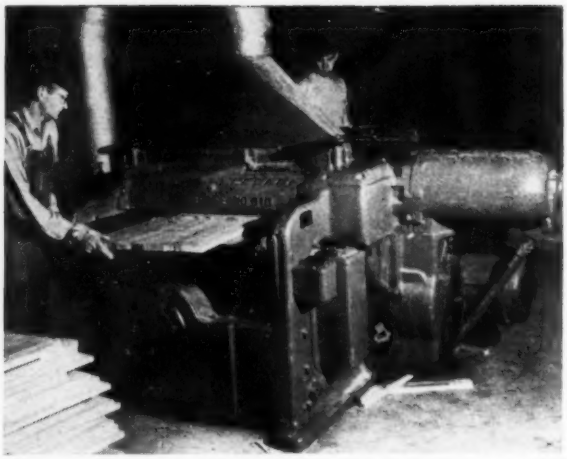
Cutterhead balancing is preliminarily the responsibility of the cutterhead manufacturer. However, it is entirely possible, if one is careless, or unaware of the great importance of maintaining proper balance, to follow some practice which will allow unbalance to develop. Usually, of course, this occurs in regard to using knives of unequal weight (or dimension) opposite one another on the cutterhead. This can occur at almost any woodworking machine.

It is therefore important to make sure that knives used opposite one another on or in cutterheads are of equal weight and dimension. For testing weight, an ordinary balancing scale can be and often is employed. On types of cutterheads where use of separate bolts and washers is involved, it is often good practice to weigh the bolt, nut and washer, directly along with the knife with which it will be used.

Thus, by placing a knife, bolt and washer on one tray of a balancing scales, and another knife, bolt and washer on the opposed tray, the *composite* weight of these members which must be applied to the two sides of the cutterhead can be observed. Sometimes, where a *bit* of difference is noted, it can be canceled out by trading bolts, nuts, or washers, as between trays, while leaving the same knives in place. Exceedingly tiny weight differences between various components can either add up to produce rather serious unbalance, or can act in such manner as to cancel one another out.

## Beware Magnetism in Cutters

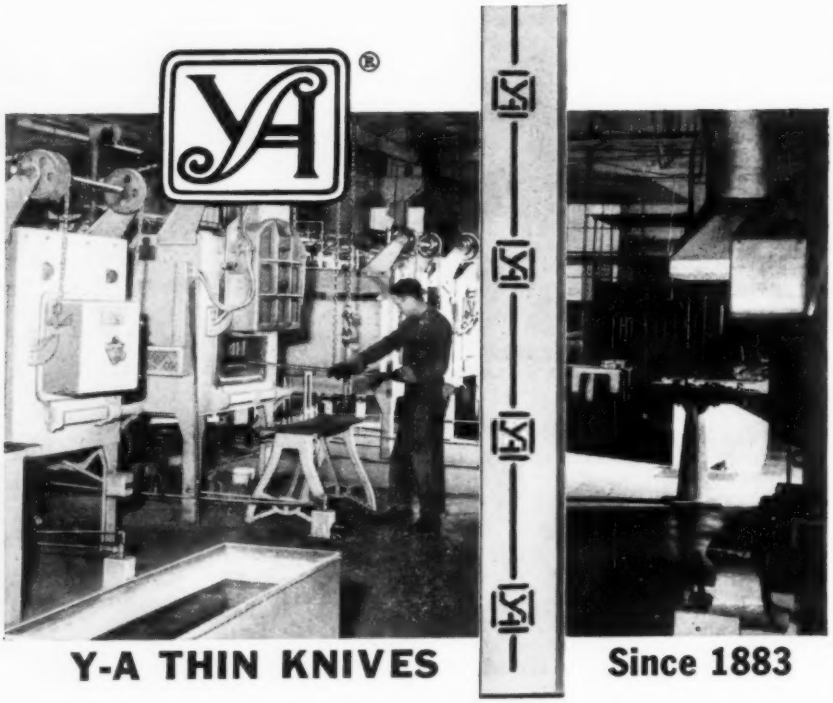
Where one is using a balance scale in the manner described, he should make sure none of the knives being weighed have any residual magnetism. Many times, woodworking cutters are ground on a surface grinder by holding them on a magnetic chuck, and the operator may fail to de-magnetize them after releasing them from the chuck. Residual magnetism in one knife, on one tray of a balance scale, has been known to affect the scale and cause it to perform erratically.



*Hardwood being smoothly dressed on Greenlee planer at Turney Wood Products Co., manufacturers of fine church furniture, Harrison, Ark. The blower pipe application in this installation is unusual,*


**we keep their**

**TEMPER UNDER CONTROL**



**Y-A THIN KNIVES** **Since 1883**

Heat-treating in atmosphere-controlled furnaces combined with the know-how of knife manufacture for 75 years makes Yates-American Thin Knives the recognized standard of quality in the woodworking industry. Y-A Thin Knives stay sharp longer between grinds — right for your feed and speed.

- Fine, keen cutting edges: Free of burrs, tough, resists nicking. Sharp up to 30% longer between grinds.
- High-speed steel alloys: Special-formula alloy steels to withstand shock and impact, deliver smooth, finished surfaces.
- Complete line: Cutterheads, milled-to-pattern bits, thick and thin knives. Standard patterns and sizes in stock for immediate delivery.
- Write for: Bulletin #7, Knives and Milled-To-Pattern Bits, or ask for complete head and knife catalog.

**YATES-AMERICAN • Beloit, Wisconsin**

**Standard sizes in stock at: Beloit, Wis.; Portland, Ore.; Atlanta, Ga.**

741


Where cutterheads are relatively long, as on woodworking planers, the proposition of dynamic balance becomes even more touchy, particularly from the standpoint that while each of the knives in a set might be precisely the same weight, one or more of those knives might have a difference in weight *as between the two ends*, in relationship to center length. Failure to guard against this point can easily result in a cutterhead badly out of dynamic balance.

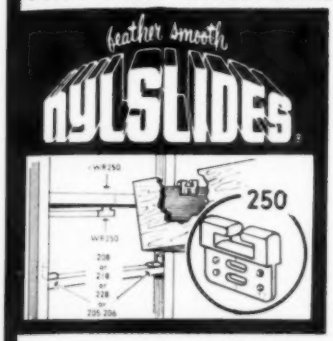
In the old days, when heavy thickness planer knives were used, special proportional knife-balance scales were often used. These allowed weighing and comparing each of the two ends of a given planer knife. With use of thin high speed steel knives, this is not quite so important as it was, although proportional balancing is never out of place. The least one can do, however, is to carefully caliper the widths of all knives in a set. Make sure not only that all knives are the same width, but that each knife is the same width at each end.

## Don't Speed Up Old-Time Machines

Failure to take running balance into proper consideration has gotten many men into trouble, both in regard to planers and other woodworking machines, when they attempted to speed up some antiquated unit with the idea of getting higher production. Many old machines were not originally built with sufficient care to allow this. After all, centrifugal force and unbalance varies as the square of the speed. This is an important thing to consider in advance before speeding up spindles or cutterheads.

Many modern machines, however, as for instance the planers made by Greenlee, have cutterheads of such design and have them balanced with sufficient care that high frequency current can be employed to operate them at from 4800 to 6000 r.p.m. instead of the standard 3600 r.p.m. In those occasional cases where it is found desirable to do this, feed speed can be stepped up in proportion. However, exhaust capacity must also be increased accordingly.

**NEW! No. 250 NYLSLIDES**
**for SMOOTH, QUIET-SLIDING DRAWERS**
**NYLON DRAWER GLIDES and GUIDES**
**COSTS LESS! INSTALLS FOR LESS!**
***Puts a STOP to those HARD-TO-OPEN DRAWERS!***




**No. 250 Installation**
(Illustrated Left)

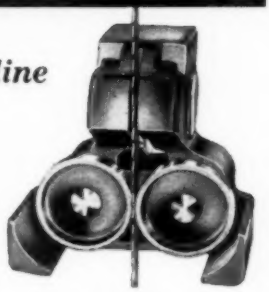
- NO MOVING PARTS
- NON-BINDING
- SIMPLE TO INSTALL
- ECONOMICAL

**For FURNITURE! KITCHEN CABINETS! VANITORIES!**
**Write for Free Samples, Spec. Sheets and Bulk Prices**
***will design and fabricate to your specifications***
**HARDWARE DESIGNERS, INC.**
1052 E. Elizabeth Ave.
LINDEN, NEW JERSEY • DEPT. WD

**CARTER BAND SAW GUIDES**

*world's largest, most complete line*

- For Any Saw
- Any Speed
- Any Load
- Any Purpose



New Guidall "400" Series

**NEW GUIDALL "400" SERIES** with bearings rotating on inner race for 167% greater efficiency. Higher speeds and heavier loads than ever possible before.

**FAMOUS MICRO-PRECISION GUIDE SERIES** require only one set of support blocks for maximum support. Sizes to fit any saw.

**NEW ZEFYR BALL BEARING GUIDE WHEEL** fits all standard #1 and #0 guides. Has honed, perfectly balanced raceways. Higher speeds, heavier loads, longer life.

**NEW BRONZITE** Micro-Precision Guide made entirely of non-ferrous materials — cannot spark or rust.

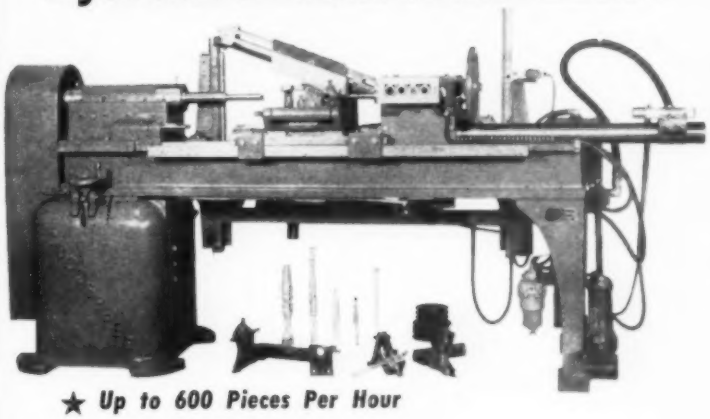
**NEW UNIVERSAL MOUNTING BRACKETS** for Carter Guides on any machine.

Micro-Precision Guide Series

***FREE*** **CARTER BAND SAW GUIDES CATALOG and OPERATING INSTRUCTIONS MANUAL.** Write us at:
**423 Helmer Building**
**50 Market Ave., N.W.**
**Grand Rapids, Michigan**

**CARTER PRODUCTS COMPANY, Inc.**

**FASTER *TURNING*** ***means*** **MORE *EARNING***
**with the NEW**
**GOODSPEED**
**Hydraulic Back Knife Lathe**



★ *Up to 600 Pieces Per Hour*
★ *Lowest Knife Cost*
★ *Safest Turning Method*

**This Automatic Lathe Has Outstanding Features**

1. A hydraulic operated center carriage.
2. A simple system of measurements for repeating set ups.
3. Two-speed feed control which permits faster feed rate on turnings and automatic slow down on beads and sharp contours when necessary. Automatic return to normal feed rate.
4. Pressure lubrications of ring die permits higher spindle speeds with no appreciable burning in die.
5. Twelve spindle speeds from 1975 to 5600 R.P.M. with only four quick change pulleys.
6. Push button control from Central Station facilitates set up.
7. A self-relieving cut-off tool.

**PROVED BEST BY TEST!**

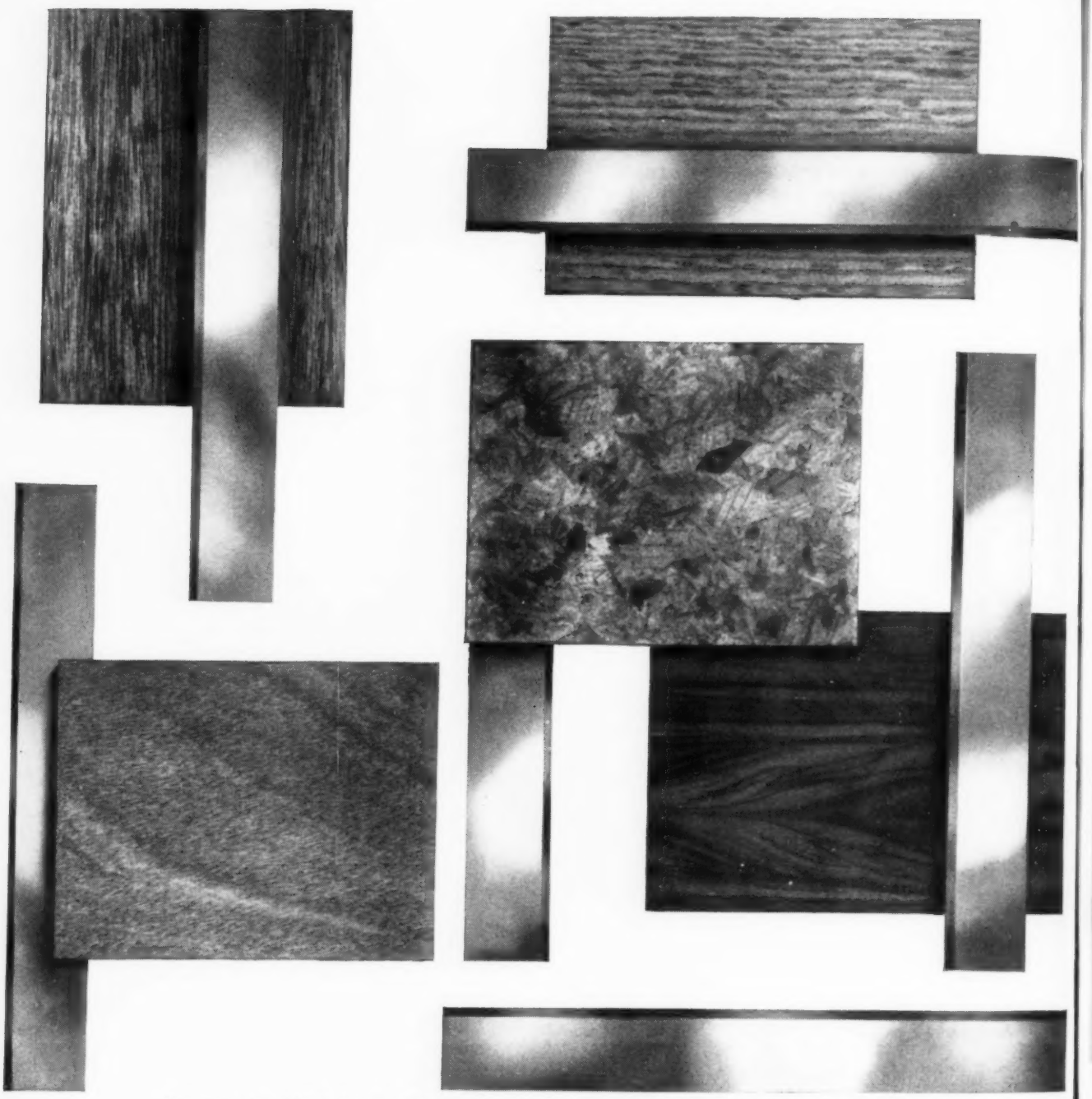
*Actual Comparison Tests Prove*

The Goodspeed hydraulic back knife lathe to be way ahead of any Rotary Head turning method. The wide range of spindle speeds coupled with an infinite variable two-speed feed means more and better turnings with fewer rejects. Knife costs range from $4.80 to $6.50 per inch. The tool control and measuring system developed by GOODSPEED assures fast and accurate set ups.
20" - 30" - 40" - 50" capacity MODELS are now available. May we send you sample turnings and production figures? A request on your letter head will insure your receiving the latest information on this new production lathe by return mail.
Over ninety years experience building Back Knife Lathes.

***WRITE TODAY for Bulletin # 115 and get ALL the facts that will TURN the PROFITS your way!***

***Over A Century of Experience at Your Command***

**GOODSPEED MACHINE COMPANY**
★
WINCHENDON, MASSACHUSETTS



Kennametal carbide knives are being used on a wide range of hard-to-plane materials such as hard woods, wood products and synthetics to boost production, reduce maintenance and improve finish.

# KENNAMETAL* KNIVES

**Stay sharp longer.** Planing oak barrel staves on a 70 hour test run, solid Kennametal knives required only 10 hours maintenance. For this same length of operation, steel knives would require an estimated 66 hours maintenance.

**Boost production.** Using Kennametal knives, a hard board producer in Oregon is able to run his 50″ planer with a feed of 80 fpm. Previously, with alloy steel knives, 35 fpm was the maximum. Daily production has thus more than doubled.

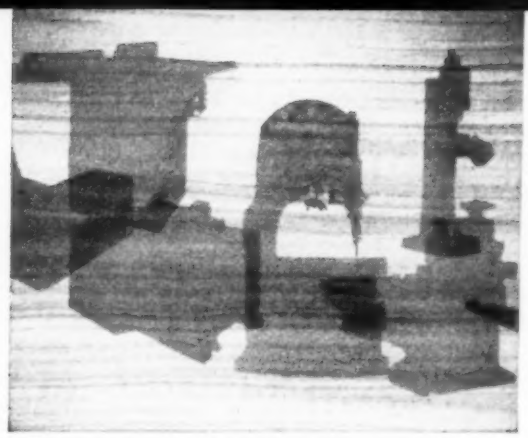
**Provide better finish.** A hard board producer found Kennametal knives the answer to excessive "washboarding." Whereas steel knives had a tendency to deflect, the rigidity of solid Kennametal knives stiffened the entire head and eliminated this problem completely.

**Plane hardest materials.** Once thought impossible to plane on a production basis, pecan wood is now used extensively by a North Carolina furniture manufacturer. Kennametal knives make it possible.

**Kennametal knives can raise your production . . . lower your costs. Find out how . . . from your knife supplier, or write KENNAMETAL INC., Latrobe, Pennsylvania.**

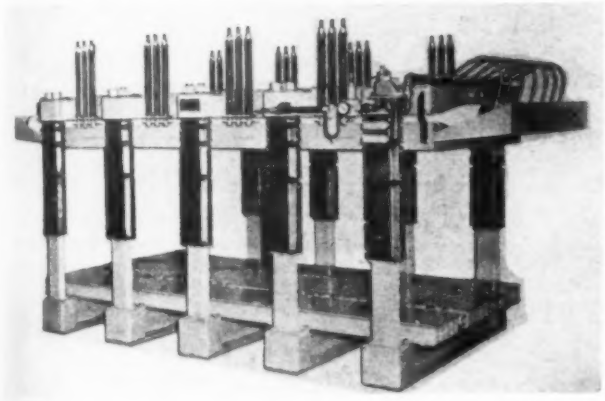
*Trademark

INDUSTRY AND KENNAMETAL
*. . . Partners in Progress*

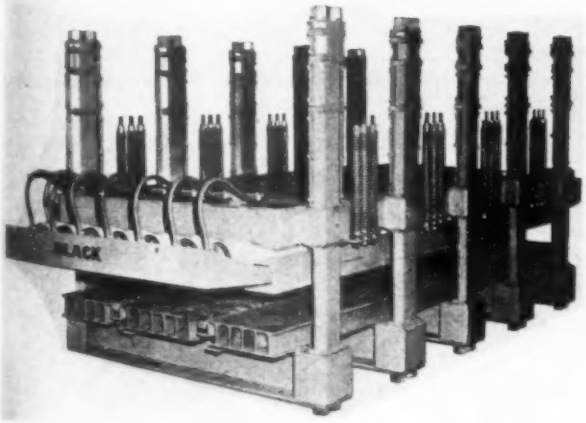


# equipment and supplies

## Black Adds Laminating Press



*Black press in open position.*




*Press in closed position.*

Adjustable vertical daylight openings, accomplished by means of split sectional spacers, further increase the versatility of Black's air hose type laminating presses. These movable spacers allow the top platen of the press to be raised or lowered manually to vary the daylight opening of the press. This allows the daylight opening of the press to be matched to the height of the load, pressing time, etc., for the particular operation being performed.

The minimum daylight opening on presses equipped with adjustable spacers is usually 4" while the maximum is 49". The spacers provided on the press shown in the illustration allow any opening within this range in increments of 2". Larger than the standard 49" daylight openings are available and are usually furnished on presses to be used for laminating flush doors.

Pressure is applied to the top platen by means of 4½" I.D. fire hose. This hose has a bursting strength of 600 p.s.i., is tested at 250 p.s.i. and has a maximum working pressure of 150 p.s.i. Usually, it is not necessary to use more than 100 p.s.i. for efficient operation of the press thus insuring a more adequate safety factory and long hose life. As an added precaution, protective hose guards are provided on the ends of the machine as standard equipment. **Manufacturer: Black Brothers Company, Inc., Mendota, Ill.**

Use postpaid card. Circle No. 9

## Onsrud Introduces New Router

Heavy duty routers, the No. 1024 and No. 1036, are new to the line of Onsrud machines. Features of these machines include a new modern design, easier tooling and setup, simplified operation, extra strength and lower maintenance costs. They are designed for any type of material used in woodworking as well as for routing aluminum and related nonferrous metals.

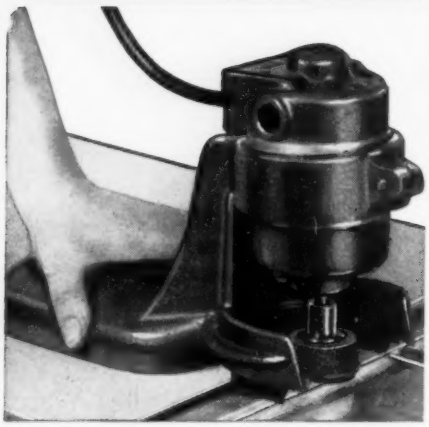
The entire machine stand (bed, column and overarm) is a one-piece Meehanite casting, massive in dimensions for absolute rigidity and maximum routing accuracy. Control of the machine is centered in a complete pushbutton station in the front of the machine with selector switch for operation at 10,000 or 20,000 r.p.m. spindle speed. Stop button stops drive motor and also automatically actuates electric spindle brake for quick stopping. New large size tables provide ample room for set-up and work feed. Tables are completely adjustable for vertical height positioning and an optional table design also provides tilt to any angle up to 45°.

Foot control on floor lowers or raises router head for vertical feed to work. Foot pedal controls air pressure for actuating feed. Design details include such advantages as spindle lock for easier mounting of arbors and chucks, air nozzle to keep work free of chips and patented vacuum pulley drive to give positive transmission of drive motor power and speed to spindle.

**Manufacturer: Onsrud Machine Works, Inc., Woodworking Machinery Division, 7742 Lehigh Avenue, Niles 48, Illinois.**

Use postpaid card. Circle No. 10

## *Keep Your* JOINTER and PLANER BLADES *EVER-SHARP*



In minutes, the Foster Portable Jointer-Planer Blade Sharpener will have your machine back into production with sharp, uniformly cutting blades.

- **No removing blades or time consuming re-adjustment!**
- **No installation!**
- **All blades are ground parallel with the table top!**
- **Low initial cost!**

**FOSTER SUPPLIES CO.**

**6122 Milwaukee Ave., Dept. WWD, Chicago 46, Ill.**

## Double Top Roller Coater

A new roller coater for applying two coats of finish to the top surface of flat wood and composition panels has been introduced by Dubois Machine Co.

Known as Dubois double top roller coater Model TD the machine is said to produce a smoother, more uniform finish than a single coater, with considerable savings in paint. Model TD practically eliminates ridging by "filling in" imperfections of the first coat. And by "building up" the edges where a one-coat finish normally pulls away, it ends the need for retouching by hand.

Actual production tests in furniture plants, over a two-year period, show that the double coater gives far better

## *"UNIVERSATILITY"* . . . describes this UNIVERSAL EDGE SANDER

**The NEWTON MODEL E-30 UNIVERSAL EDGE SANDER is unsurpassed for handling small parts on production.**

This low-cost Precision-built tool for sanding straight and irregularly shaped edges of wood parts, as well as for many flat surface operations, is well adapted to the sanding and polishing of other materials such as paper, leather, rubber and metals.
The compact NEWTON E-30 with the "double construction" platen is built to give manually high performance at low cost. Platen area is 8½" x 30" on each side, using an 8" x 77" abrasive belt. The work table is extra large—22" x 52", the back half of which tilts for angle sanding. The entire workhead oscillates, and is powered by a 3 H.P. direct-drive totally enclosed motor.
Also available in a smaller model having a 6½" x 18" platen.
Send today for your descriptive literature and specifications.

## 2 or 4-SPINDLE AIR-OPERATED BORER

**This BA-600 Borer will double production by handling two pieces of work at one pass.**

Due to its simplicity and ease of setting-up, the NEWTON ALL AIR-Operated BA-600 will effect big savings and improve quality on any boring job, large or small. It is truly a High-Production Precision Borer, in the low price bracket. Clamping and unclamping of the work is automatic. The conventional foot treadle has been replaced by a simple foot operated valve—"operator fatigue" is eliminated. This exclusive leveling feature provides uniform holding under all conditions. The instant pressure is applied the full pressure plate automatically levels off the surface of the work piece, avoiding the possibility of marring the piece.
Manually operated 2 and 4 Spindle Horizontal Borers also available.
Write today for your descriptive brochures and specifications.

## NEWTON MANUFACTURING COMPANY

**Newton Power Tools** **TEMPLE, TEXAS**

coverage with up to 20% less finish material than was used with a single roll coater.

The unit is available in three widths, with rollers of 26", 40", and 52". It handles work up to 4½" thick. Rolls are adjustable to apply any desired thickness of finish.

**Manufacturer: Dubois Machine Co., Ferdinand, Ind.**

Use postpaid card. Circle No. 11

## Compact Lubricating Units

Two new, compact Lubro-Control Units are now being featured by the C. A. Norgren Co., Englewood, Colorado. The smaller for ⅛" pipe installations measures 4½" wide, 4¾" high and 3" deep. A slightly larger unit for ¼" pipe installation measures 7¼" wide, 5½" high and 3¾" deep.

These new Norgren Lubro-Control Units provide complete and efficient processing of compressed air for service to air cylinders, air chucks, air tools, bearings and other machine components. Models are available for air flows from .05 to 20 cfm.

Each Lubro-Control Unit consists of: an air filter, a pressure regulator and a micro-fog lubricator. The new, small air filters provide efficient removal of corrosive liquids and abrasive solids from the air stream, preventing damage by these contaminants to connected air equipment. They feature a transparent reservoir, directional air inlet, quiet zone, sintered metal filter element, no tools required for servicing.

A new, small efficient pressure regulator is used in each Lubro-Control Unit. It provides reliable regulation of air pressure and is adjustable over a pressure range of 5 to 100 p.s.i.

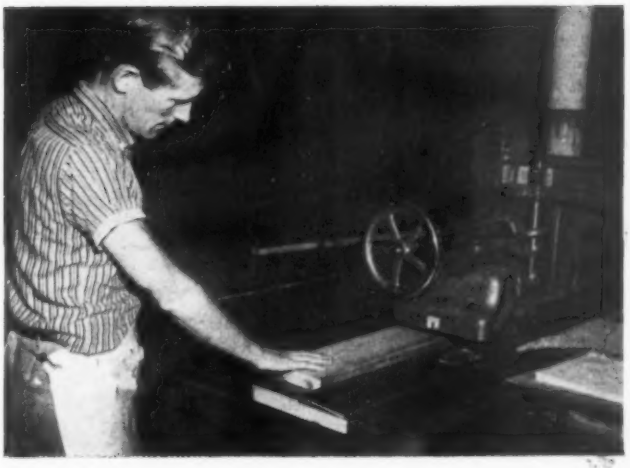
The new micro-fog lubricators provide efficent and adjustable air-borne lubrication. They feature controlled oil delivery, transparent oil reservoir and oil feed dome for 360° visibility of oil feed rate, no tools required for servicing. Maximum line pressure is 150 p.s.i.; maximum regulated pressure 100 p.s.i.; maximum operating temperature is 120° F.

**Manufacturer: C. A. Norgren Co., Englewood, Colorado.**

Use postpaid card. Circle No. 12

## Rip Saw Edging Guide

The "Edge-O-Matic" automatic rip saw edging guide, recently introduced by Louis Gordon, Inc., is designed to help eliminate "line of sight" edging on straight line rip saws. This unit has an adjustable spring loaded plate that provides for a fence controlled cut. Waste wood is eliminated because the guide's fence holds the first cut to the width of the saw kerf. Savings of up to 100' of lumber per eight hour operation on one machine have been reported by users.



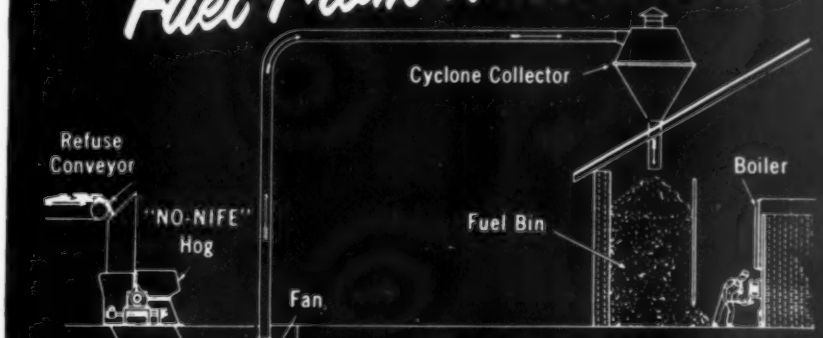
*"Edge-O-Matic" automatic rip saw edging guide.*

Adjustments to the plate height are easily and instantly made by a knurled dial located beneath the unit. Once the "Edge-O-Matic" is adjusted, it requires no additional setting. Feed through of lumber can be continuous with no lost motion.

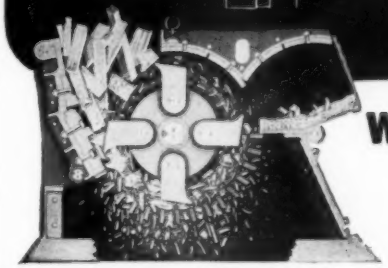
**Manufacturer: Louis Gordon, Inc., High Point, N.C.**

Use postpaid card. Circle No. 13


Get Better, Lower-Cost Fuel From Waste Wood!




Typical automatic installation in many plants. All wood scrap is conveyed to the hog; then chips are blown to fuel bin. In some installations, chips are blown to a stoker which feeds them into boiler or furnace; in other cases, chips are blown directly into fire box.



Cross section of "No-Nife" Hog showing how fast-moving chisel-edge hammer reduces wood by impact until properly sized to pass through grates in bottom of hog.

WILLIAMS "No-Nife" HOGS

When reduced to chips in a "No-Nife" Hog, wood scrap is 100% combustible—the cheapest of any fuel for producing heat and power. Money-wasting unhogged wood refuse won't burn evenly, restricts air flow, smothers the fire, causes excessive smoke and soot.

By hogging, handling costs are also reduced up to 75%. One man can handle as much tonnage in chip form as three men can handle in long lengths, awkward and odd-shaped pieces. In most installations, labor savings alone pays for a "No-Nife" Hog in a few months.

*Write For Fact-Filled Brochure*

***Williams builds a complete line:***
Hogs, Grinders & Shredders • Vibrating Screens • Air & Mechanical Separators
Heavy Duty Fans • Cyclone Collectors.

**WILLIAMS PATENT CRUSHER & PULVERIZER CO.**
808 ST. LOUIS AVENUE St. Louis 6, Mo.

WILLIAMS
CRUSHERS GRINDERS SHREDDERS
OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD

One order, one source
*... every fastener need*

**Factory-Insured**

## SO-HARD FASTENERS

A full line for every conceivable use in wood. Famous quality fasteners, factory-insured for uniformity and dependability—made to exacting tolerances, with clean, precise threads.

In addition, you are guaranteed specialized service when specifying famous So-Hard fasteners... shipments the same day the orders are received on all standard items.

Real good service and highest quality fasteners—two good points to remember. VMA 0477

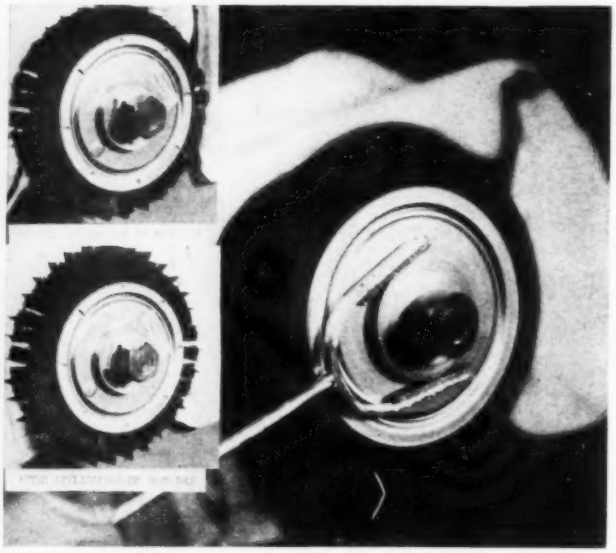
**SOUTHINGTON HARDWARE DIVISION**

PITTSBURGH SCREW AND BOLT CORPORATION

Southington, Conn.

America's Most Complete Line of Industrial Fasteners

## Abrasive Feed Mechanism For Brush-Backed Heads



*Top photo shows wheel before application of pressure. Lower photo, after application of pressure.*

A new semi-automatic abrasive feed mechanism has been announced for Vonnegut brush-backed head by the manufacturer, Grinding and Polishing Machinery Corporation.

This semi-automatic abrasive feed mechanism is designed for the 32 brush models and eliminates entirely any machine down-time while additional abrasive is fed out of the head. The full 500 lineal inches of abrasive, coiled inside of a Vonnegut brush-backed head, may now be fed out without stopping or slowing down the rotation of the head.

Pressure may be applied to an external ring by a simple tool, designed for this purpose, while the head is in full motion. As the pressure is released, the correct amount of abrasive is fed out automatically. A built-in safety device prevents the emergence of more than the proper amount of abrasive **Manufacturer: Grinding & Polishing Machinery Corp., 2530 Winthrop Ave., Indianapolis 5, Ind.**

Use postpaid card. Circle No. 14

**TITAN High Speed HANGER BOLT DRIVER**

• **TIMED IN SECONDS!**

This tool is used by a majority of plants where hanger bolt driving is done on a high production basis. Can be operated at any speed which is safe for driving the hanger bolt. It is not necessary to stop rotation at any time.

**COLLAPSIBLE TYPE TRIP GAGE**

Patented. Has such a large adjustment range, made possible by a new all-thread main ring, that most common stud projection heights can be secured with only one gage.

- AUTOMATIC TAKE-UP FOR WEAR ON JAWS
- REVERSING POSITION OF CLUTCH GIVES DOUBLE WEAR AT HALF COST
- AFFORDS ACCURATE PROJECTION HEIGHTS
- USE WITH ANY AIR OR ELECTRIC DRILL OR DRILL PRESS

***Write for Free Literature, Today!***

TITAN TOOLS

**TITAN TOOL CO.**

*Production Tools*

**49 Main Street**

**Fairview (Erie County), Pa.**

# Cut Saw Costs!

Eliminate expensive "outside" sharpening . . . or time-costly "hand-sharpening" . . . of Band Saws and Circular Woodcutting Rip Saws or Nonferrous Metalcutting Saws. Rugged Black Diamond units grind or file *quickly* and *accurately!* Any low-salaried, inexperienced man (or woman) can produce perfect cutting edges on every tooth, every time! Keep all your saws sharp, with less saw inventory!

Ask about Wright Band Saw Guides, too!

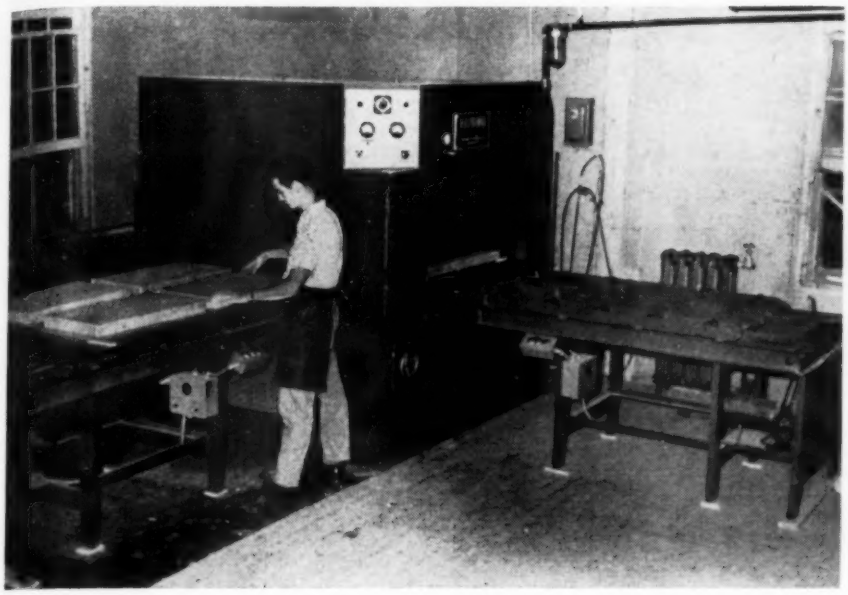
Get this Folder

**BLACK DIAMOND**

SAW & MACHINE WORKS

80 NORTH AVE. NATICK, MASS.

## One-Man Press Developed By Raybond



A new one-man panel-on-frame press, designated Model No. PF has been developed by Raybond Electronics, featuring simplified operation which permits use of female help, the press is equipped with hopper feed glue spreader. The panel and the rails which make up the frames are glued in one operation.

**Manufacturer: Raybond Electronics, Inc., Newton Highlands, Mass.**

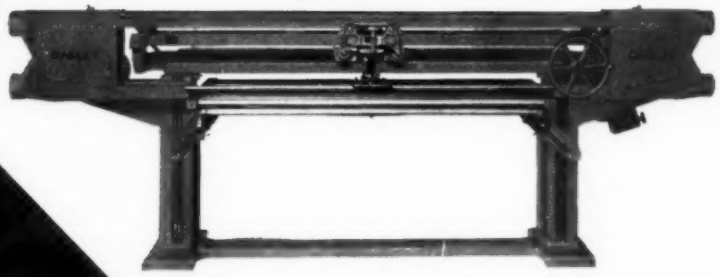
Use postpaid card. Circle No. 15

*MORE INFORMATION?*

If you wish additional information about any of the equipment described on pages 91 through 99, circle the corresponding numbers on the Readers' Service cards inside the back cover. Mail the cards to us and we shall gladly obtain the information for you.


**BUILT FOR HIGH PRODUCTION**

**OAKLEY MODEL D SINGLE-BELT SANDER**



- HIGH SPEED
- SEMI-AUTOMATIC
- DUST-PROOF
- REVERSIBLE
- CAPACITY TO 10'8"
- FRICTION-FREE STROKER

**NEW EFFICIENCY PEAKS PROFITS**

Revolutionary stroker unit is double-lighted . . . sands assembled case goods easily. Light-alloy stroker "floats" on rigid steel bar track. Saves 25 to 40% on paper costs by changing belt direction.

**SANDER & POLISHER COMBINED IN MODEL D-1**

All the features of Model D are incorporated in this Oakley Sander-Polisher. Removes tape, polishes and eliminates raised grain without sponging or glue sizing. Stock is ready for finishing room with single handling! ***WRITE FOR FULL DETAILS TODAY***

*Dept. 10*

**The Oakley Co.** SINCE 1934 — BRISTOL TENNESSEE



**BEST FROM EVERY ANGLE**

**GREENLEE MULTI-SPUR MACHINE BITS BORE AT ANY ANGLE WITHOUT SPLITTING STOCK**

Veneers, plywoods, hard woods, soft woods . . . Greenlee Multi-Spur Machine Bits bore at any angle or overlap . . . even on edges . . . without danger of stock-splitting or break-out. Large holes can be bored smoothly, quickly with a minimum of power on small spindle machines. Made of high-grade, alloy steel. Sharpen with a file. Thirty-seven different sizes available from ½" to 4" diameters. Ideal for long production runs. See your nearest Greenlee distributor for Greenlee Multi-Spur Machine Bits.

***FREE . . .***

**NEW GREENLEE CATALOG 36-M**

Keep this new Greenlee catalog close by. Easy reference for all Greenlee mortising, boring and routing tools. See your distributor or write direct.

**GREENLEE TOOL CO.**

Division of Greenlee Bros. & Co.

1732 HERBERT AVE.

ROCKFORD, ILLINOIS

## Two New Models For Workrite

Workrite Products Co. has introduced two new models to their line of portable electronic welders for wood and plastic.

These powerful new machines, models 3000 and 4000, offer increased power with new circuits and additional tubes, for greater efficiency in operation. Powered respectively with 4 and 6 tubes they feature portability, one hand operation, 13' coaxial cable for easy accessibility to work, and a light weight of only 2 lbs. 12 oz. They will weld wet or dry woods, Formica, masonite, and all non-metalic materials. The welder is held to the surface of the piece to be joined, the trigger is squeezed and in 5 seconds there is a good bond.

These portable electronic welders have many applications ranging from veneering, paneling, bonding and cabinet making to trailer manufacturing, aircraft assembly and furniture manufacturing.

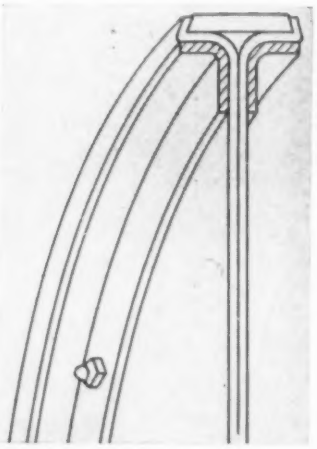
**Manufacturer: Workrite Products Co., 808 W. Doran St., Glendale, California.**

Use postpaid card. Circle No. 16

## Wheels For Band Saws

The development of special new reinforced wheels to be used on band saws and band resaws or for extreme heavy duty requirements has been announced by Carter Products Company, Inc.

The rims of these heavy-duty wheels are reinforced with a double thickness



of quality steel to make them five times stronger, according to the manufacturer and are ideal for use on resawing operations or on very thick work—on shakes—or any work requiring extreme blade tension. The company further states that the new reinforced wheels offer new dynamic balancing for absolute vibrationless operation, at any high speeds.

**Manufacturer: Carter Products Co., 50 Market St., N.W., Grand Rapids, Mich.**

Use postpaid card. Circle No. 17

## High Efficiency Cyclone

Largest of a newly-designed series of cyclone separators being introduced by Torit Manufacturing Company, is the Model 36, a cyclone which operates in the 4,000 to 6,000-plus c.f.m. range.

Other recently-announced models are the No. 24, operating in the 2,000-3,000 c.f.m. range and Model 30, rated from 3,000 to 4,500 c.f.m.

The new Model 36 features adjustable belt drive to give a wide range of c.f.m. performances against varying resistances. Its long tapering cone design and high inlet velocity place it in the "high efficiency" cyclone separator classification. In laboratory tests, Model 36-FM has separated 99.2% of steel grindings, 99% of sawdust and 94% of flour by weight.

In the Model 36, the blower is mounted either on the clean air side of the collector or remotely to prevent fan damage from bulky dust, chips, wood blocks, tramp iron or other foreign sub-


**He cut sawmill labor cost 31% in 2½ years**

*with Corley's Step-by-Step Plan*

Case History 903: Read how this sawmill owner is once again making a good new profit due to the addition of necessary equipment with Corley's Step-by-Step Plan. Tells how he accomplished this with a small initial investment, too! Write today for *your* free copy!

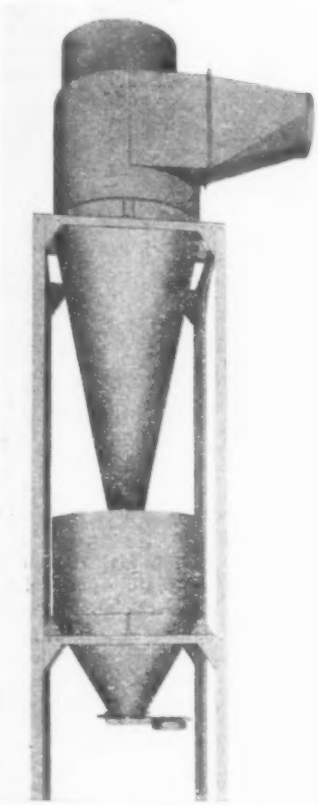
*Corley Manufacturing Co. Dept. HW-39. Clifton Hills, Chattanooga, Tenn.*

**CORLEY SAWMILL MACHINERY**

*Cost-cutting is Our Business*

stances. These are deposited in the collector base, before air reaches the blower. If the blower is located remotely, it can be used for either blow-through or pull-through operations.

The 36-FM model is designed for outdoor exhaust. When it is desirable to conserve heat and recirculate cleaned air, FB models can be used.



The Model 36 has 14" inlets and outlets. The standard base has 30 cu. ft. storage capacity for dust, emptied through an air-tight slide gate. The separator occupies 44" x 70½" of floor space and measures 13', 9⅜" from hopper outlet to top.

A protective weather cap and weather-resistant finish are available for outside installations.

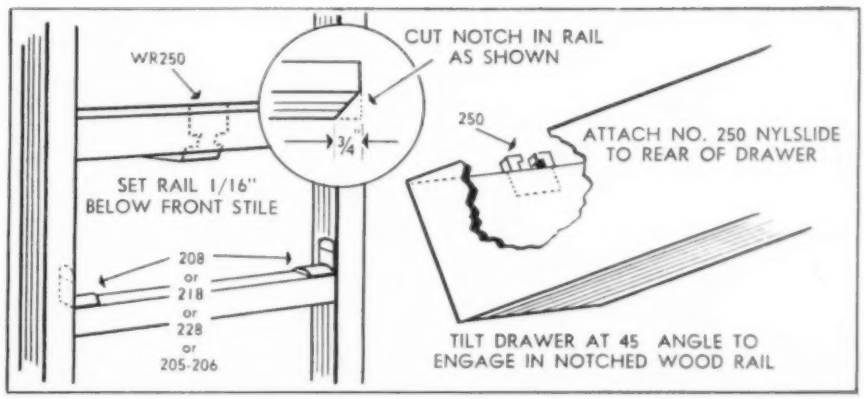
**Manufacturer: Torit Manufacturing Co., Dept. KP, Walnut & Exchange Streets, St. Paul, Minn.**

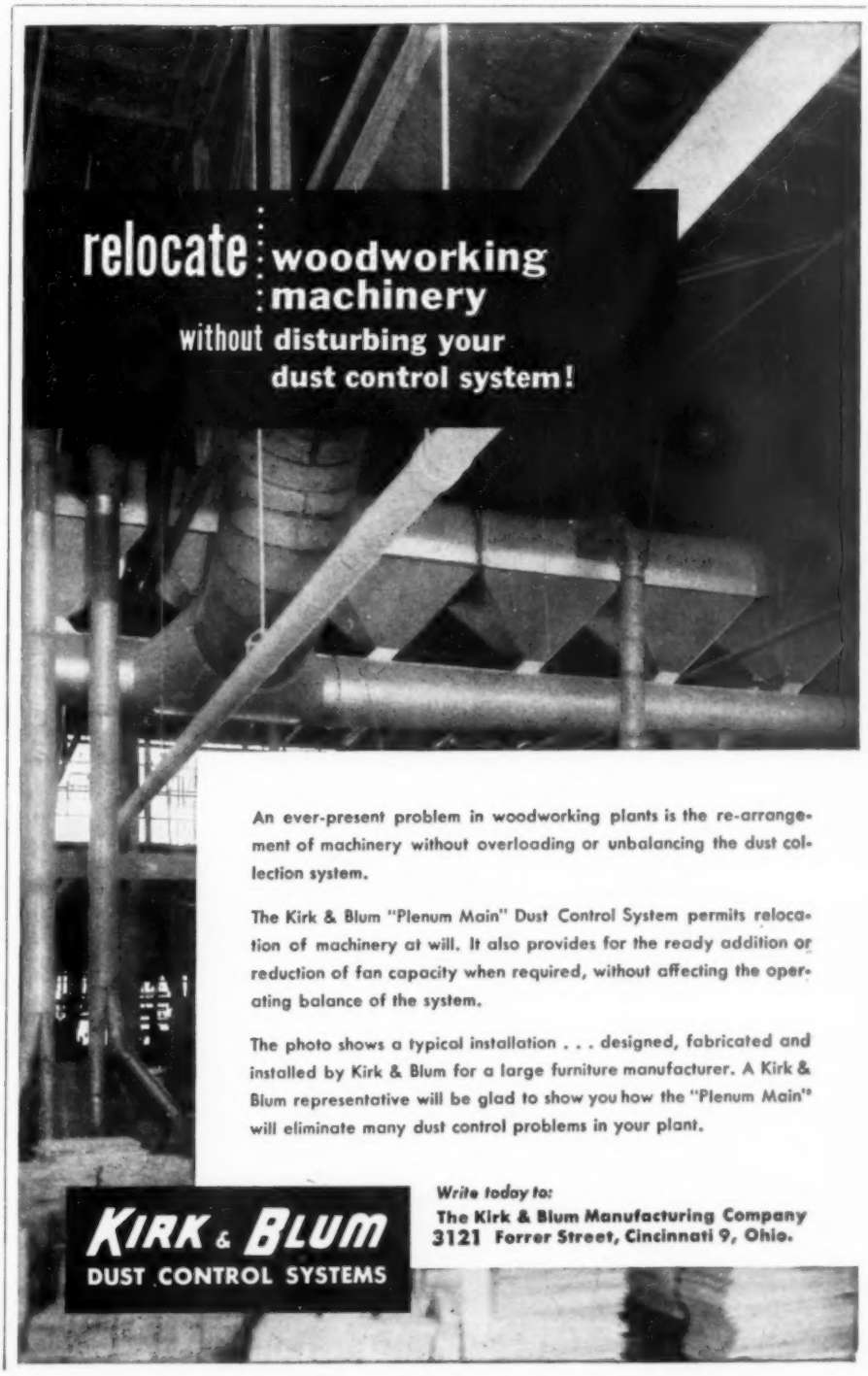
Use postpaid card. Circle No. 18

## Nylslides No. 250 For Furniture and Cabinet Makers

This new drawer glide will contribute to a quiet, smooth-sliding drawer operation. It has been designed to give true 3-point glide and guide assembly for furniture, kitchen cabinet and vanitory drawer operation. A minimum of contact points and the use of nylon for minimum resistance are two outstanding features of the new Nylslides No. 250 series.

The new Nylslides No. 250 series features four basic applications to the woodworking industry: the top and bottom mount hanging installations No. 250-88 for kitchen cabinets; the dust-proof drawer construction installation No. 250-88 for furniture; and installation No. 250-56 for vanitories. Many more applications are possible and


WR250
CUT NOTCH IN RAIL AS SHOWN
3/4"
250
ATTACH NO. 250 NYLSLIDE TO REAR OF DRAWER
SET RAIL 1/16" BELOW FRONT STILE
208 or 218 or 228 or 205-206
TILT DRAWER AT 45 ANGLE TO ENGAGE IN NOTCHED WOOD RAIL



relocate woodworking machinery
without disturbing your dust control system!
An ever-present problem in woodworking plants is the re-arrangement of machinery without overloading or unbalancing the dust collection system.
The Kirk & Blum "Plenum Main" Dust Control System permits relocation of machinery at will. It also provides for the ready addition or reduction of fan capacity when required, without affecting the operating balance of the system.
The photo shows a typical installation . . . designed, fabricated and installed by Kirk & Blum for a large furniture manufacturer. A Kirk & Blum representative will be glad to show you how the "Plenum Main" will eliminate many dust control problems in your plant.
KIRK & BLUM
DUST CONTROL SYSTEMS
Write today to:
The Kirk & Blum Manufacturing Company
3121 Forrer Street, Cincinnati 9, Ohio.

Hardware Designers, Inc., manufacturer of the glide, is equipped to custom-tailor Nylslides No. 250 to meet individual requirements.

**Manufacturer: Hardware Designers, Inc., 1052 Elizabeth Ave., Linden, N.J.**

Use postpaid card. Circle No. 19

## Kirk & Blum Offers Type "M" Collector

Type "M" unit dust collectors are being manufactured by the Kirk & Blum Manufacturing Company, Cincinnati, Ohio. Although three model sizes are available, 450-900-1800 C.F.M., the largest unit is only 26" x 40" x 72½". This compactness is achieved by careful placement of equipment within the rigid, durable enclosure.

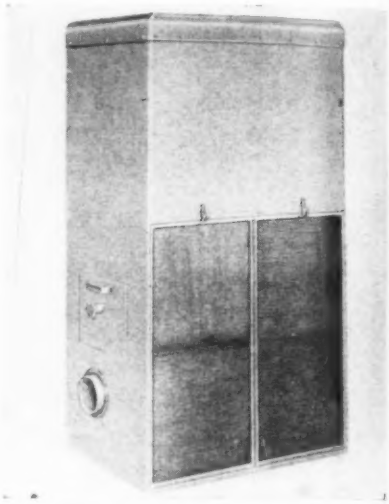
In all sizes of the Type "M" unit collectors, the dust laden air is delivered to a small diameter, high efficiency, centrifugal pre-cleaner where all but the finest particles are removed. The air then passes through steel wool filter pads, 3" thick, for final cleaning.

Dust receptacles are gasketed, sliding drawers, secured with a hand wheel to insure a leak-proof seal. The after-cleaner, readily accessible through an expanded metal panel, usually requires cleaning not more than once in two weeks, depending on usage.

Where conditions will not permit the re-entry of cleaned air into the working area, the filters of the "M" collector are replaced with airtight closures and the air vented to the outside. Exhaust stack connections are furnished at top of the unit.

Both re-entry during the winter months to conserve heat, as well as venting during the summer for ventilation, are accomplished by equipping the unit with both exhaust stack and filters. The change is effected simply by turning a damper in the stack.

The extra heavy housings of these units are 1/16" sheet steel, welded construction, for greater rigidity and durability. Exhausters are heavy duty industrial type, direct connected to a



3600 r.p.m., 220/440 volt motor. The motor is amply ventilated and readily accessible through a removable expanded metal panel. Both motor and exhauster are completely isolated from dust to eliminate fire hazard. Con-

**Manufacturer: Blum Manufacturing Company, 3100 Forrer Street, Cincinnati 9, Ohio.**

Use postpaid card. Circle No. 20

## Neoprene Increases Life of Gloves

An improved neoprene coating, reinforced with special additives, gives "Neox" work gloves much greater resistance to industrial solvents. It is also more flexible and made in a new hand-fitting pattern, with wing thumb and curved, pre-flexed fingers, for maximum comfort and dexterity.

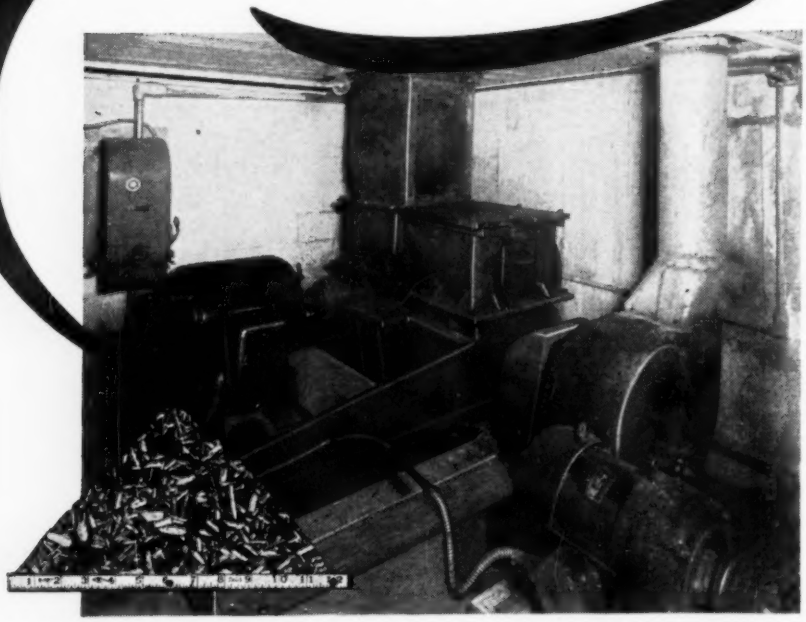
This improved coating provides unequalled all-around protection against a wide variety of hazards, including cutting, abrasion, heat, solvents, acids,

alcohols and caustics. Available in palm coated knitwrist and 7 fully coated, liquid-proof styles, including knitwrist and 10", 12", 14" and 31" gauntlets.

**Edmont Manufacturing Company, Walnut Street, Coshocton, Ohio.**

Use postpaid card. Circle No. 21


# AMERICAN WOOD HOG



## CONVERTS OAK SCRAP INTO FUEL FOR COOPERAGE PLANT

**Hard oak, used in the manufacture of barrels, has kept this cooperage company supplied with plenty of fuel (and the steam so essential to its operations). Pieces of 1 3/16" stock, varying from 4" x 15" to 48" x 1" are fed to the American Hog. The company used no coal whatsoever last year—very little in previous years since the installation.**

**Investigate American's fuel-saving features for your plant's operation.**

**WRITE for Literature "Making Wood Waste Pay"**

American PULVERIZER COMPANY

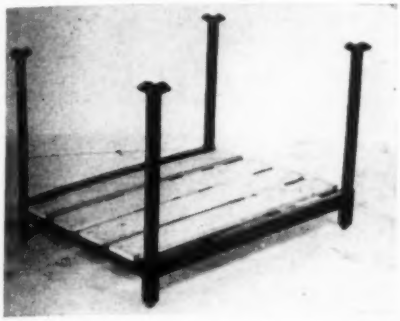
*Originators and Manufacturers of Ring Crushers and Pulverizers*

1510 Macklind Ave.
St. Louis, Missouri

## Rack Stores Loads to 1200 lbs.

The "Junior Stak-Pal" is a tubular steel stacking rack with removable posts. Junior model, for loads to 1200 lb., has been designed on the lines of the standard Stak-Pal, which accommodates loads to 300 lbs.

Rack is ruggedly constructed. Type B has two center support angles, four-way entry. Type C has six center support angles, four-way entry; rack is wider than the length of the lift truck forks.

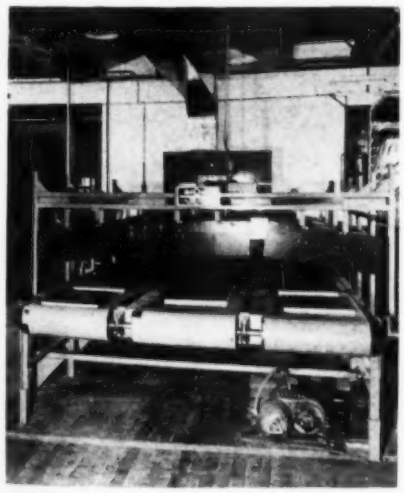


New Junior model fulfills the need of many lighter weight materials; ultilizes valuable air space. Either junior or standard models can be furnished with solid decks of plywood or sheet steel instead of standard deckboards. **Manufacturer: C. E. Robinson Co., Colburn Ave., Joliet, Ill.**

Use postpaid card. Circle No. 22

## Furniture Manufacturer Dries Base Coats With Infrared Ovens

In order to achieve greater production in a limited area, the Kroehler Mfg. Co. has installed two driQuik ceramic



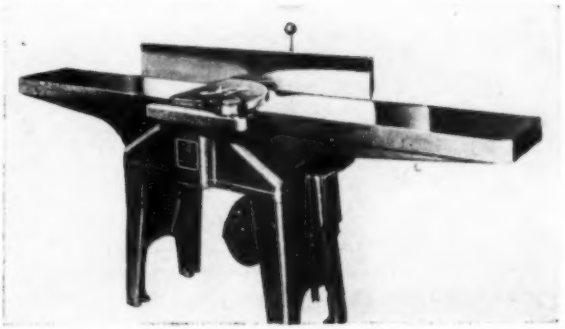
generator electric infrared ovens in its Bradley, Ill., case goods plant.

By use of several temperature controls, each oven is divided into temperature zones, making it possible to have a different temperature in each zone of the oven. The ovens are being used in the Kroehler Mfg. Co. plant to dry base coats.

**Manufacturer: Dry Clime Lamp Corp., Greensburg, Ind.**

Use postpaid card. Circle No. 23

## New 12" Jointer



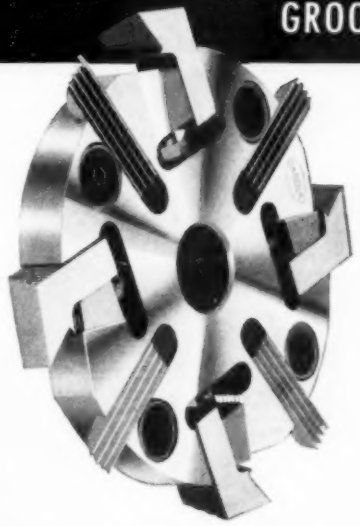
*Yates-American has added this 12" jointer to the line.*

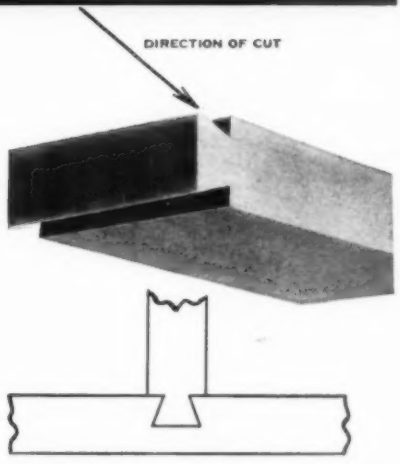
The Yates-American Machine Co. is manufacturing a new 12" jointer—Model J-139. The jointer is a heavy duty belt drive machine with an 8'x12" table. Cutterhead knives can be individually adjusted. The machine is available less motor and switch or with magnetic starter and 5 h.p. motor. **Manufacturer: Yates-American Machine Co., Beloit, Wis.**

Use postpaid card. Circle No. 24


**Avoid TEAROUTS and CHIPPING when cutting DOVETAILS by using BADGER TYPE "GDL" GROOVER DISCS!**

BADGER






Dovetail joints are used wherever strong corners are needed. They are particularly standard practice in the manufacture of millwork parts, beverage case partitions, dresser drawers and many furniture joints. Such work is usually run on single or double end tenoners. Accuracy is important so that tight joints will result in strong construction.

The secret of cutting accurate, clean dovetails without tearouts and chipping is in the design of the shear-cutting "L" type milled-to-pattern bits. These cutters shear down and across the fibers of the angular portion, away from the sharp point. Were a straight cutting action used, of course, tearouts and breakage would occur in much of the joint. The milled-to-pattern bits also have the advantage of producing the same accurate shape throughout their life. Maintenance is very simple, it being necessary to sharpen only the bevel edges. The cutting circle is maintained constant, of course, by advancing the cutters one corrugation at a time as they become worn. Note also in the Type "GDL" Groover Disc that the use of spurs assure a clean cross-grain cut to form the square shoulders of the dovetail.

If you have a productiCn problem, why not send your sketches and machine specifications **on to WISCONSIN?** You will find the **BADGER** line of cutterheads and knives very complete and **BADGER** engineers eager to work with you. You can depend on **BADGER** engineering skill!

© 1959 W K.W.

SEND FOR *Free* COPE & TENON HEADS BULLETIN #500

*Engineers to the Woodworking Industry*

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____

**WISCONSIN KNIFE WORKS**

BELOIT, WISCONSIN

# Industry Notes

## Appointments, Promotions and Elections

Gates Rubber Company has announced that **Delbert L. Peterson** is the general manager and technical superintendent for the company's new plant at Nashville, Tenn.

**Zolly C. Van Schwartz** has been made technical consultant for the C. A. Norgren Co., Englewood, Colo. Mr. Van Schwartz was director of engineering standards for the Baldwin-Lima-Hamilton Corp. of 12 years prior to joining Norgren.

**Samuel W. Keith** has been promoted to manager of industrial relations for the Atkins Saw Division of Borg-Warner Corp. He was previously assistant controller.

American Walnut Manufacturers' Association has elected **J. B. Petrus, Jr.**, Council Bluffs, Iowa, as president. He is a managing partner of the Midwest Walnut Co.

New association vice-president is **Clarence Swords** of the Swords-Morton Veneer and Lumber Co., Rock Island, Illinois. **George W. Hartzell** of Hartzell Industries, Piqua, Ohio, has become treasurer and **George C. Romeiser** of Chicago remains the association's secretary-manager.

**Alfred W. Arenander, Jr.**, purchasing agent for West Virginia Pulp and Paper Co. since 1942, has been promoted to manager of trade relations, a newly-created position.

Signode Steel Strapping Co. board of directors elected three men to the office of assistant vice-president. The men are **Joseph F. Beckman, M. C. Carlson** and **Hobart P. Young.**

**Lester A. Roethe** has been made Powermaster product manager of Orr & Sembower, Inc. He had previously been eastern district manager.

**William A. Dost** has been appointed manager of the Technical and Research Division of the California Redwood Association.

National Lumber Manufacturers Association has named **Ralph Hodges** director of the Forestry and Economics Division. He succeeds **A. Z. Nelson**, named director of NLMA's Industry-Government Affairs Division.

**Walter A. Smith** has been elected vice-president of the Formica Corp. Mr. Smith will serve as assistant general manager.

Reichhold Chemicals, Inc., has appointed **Richard G. Bremer** to head the firm's patent department. He will headquarter at White Plains, N.Y.

**Robert E. Mahaffay** has been named general manager of the West Coast Lumberman's Association. He was previously advertising and promotion manager.


LOOK ALL OVER

— You'll Find No Finer 10-Inch Saw

*Only*

**$263.30***

(Regularly $315.00)

**BOICE-CRANE MONOMASTER**

- Powerful.
- Oversize trunnion.
- Guaranteed precision at the cut.
- Cuts 3¼" hardwood as slick as costly 5 H.P. 12-inch saws.
- Faster, safer. SINGLE blade positioning control.
- Up to 44% more ripping capacity with standard equipment.
- 5% to 29% faster blade speed.
- Blade tilts left—safer for right-handed operators.
- Steel, all-purpose insert serves saw blades and dado heads without interchange.
- Ground cast-iron fence.
- From one to three steel fill-in tables may be attached to gauge bars. Clearance of ripping gauge to blade can be increased to 49" (as shown in illustration).

*Basic unit. Motor options up to 3 H.P., switch, extensions, guard extra, but priced for further savings.

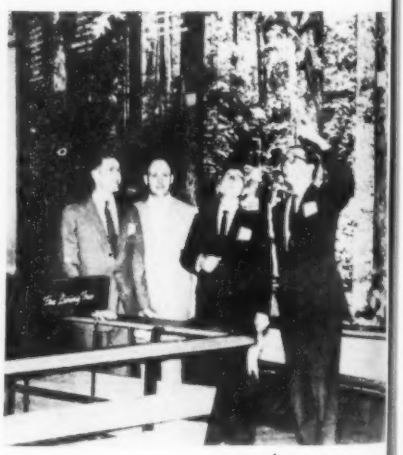
*Ask for FREE 52-page Power Tool Catalog.*

**BOICE-CRANE CO.**

*Saw Designers and Builders for 48 years.*

**931 W. CENTRAL AVE.** **TOLEDO 6, OHIO**


## New Officers Plan Improvements for Hardwoods Exhibit



Left to right: R. E. Hollowell, Jr., Pierson-Hollowell Company, Indianapolis, newly elected president of the Hardwoods Exhibit; George F. Wilhelm of R. S. Bacon Veneer Company, Chicago, treasurer; J. P. Hamer, of J. P. Hamer Lumber Company, Kenova, W. Va., retiring president; and E. Howard Gatewood, executive vice-president, Fine Hardwoods Association and also exhibit manager, discuss improve

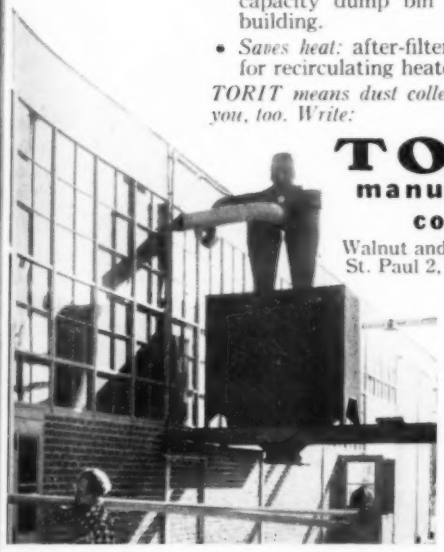
FOR DUST, CHIPS, AND SHAVINGS COLLECTION:

# SUN OIL BUYS TORIT ECONOMY!

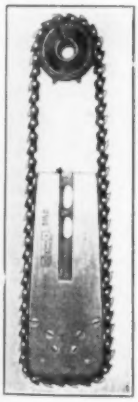
TORIT unitized dust collector gives carpenter shop central system convenience with real savings on installation and maintenance.

- *Saves floor space:* cyclone and extra-capacity dump bin mounted outside building.
- *Saves heat:* after-filters located *indoors* for recirculating heated air.

*TORIT means dust collecting economy for you, too. Write:*



**TORIT**
**manufacturing company**
Walnut and Exchange Streets
St. Paul 2, Minn., Dept. 1519



## RENOLD CHAIN MORTISER GEAR

(Fits Any Chain Mortising Machine)

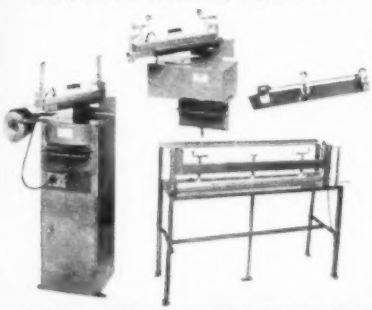
**ONE QUALITY—THE BEST**

Renold Mortise Gear is made by specialists in the manufacture of transmission chains. It embodies the best design, finest skill in workmanship, and these factors combined with the specially selected steels employed insures a user of Renold Gears the maximum results.

**Large Stock in Chicago**

**WOODWORKERS' TOOL WORKS**
224 S. Jefferson St. Chicago 6, Illinois

## ECONAWAY
**ABRASIVE BELT SPLICING EQUIPMENT**



**ABRASIVE BELT SPLICERS**
Floor Model
Bench Model — Splices belts to 14" wide.
Splice is set in seconds under pressure.

**LARGE ELECTRIC PRESS ASSEMBLIES**
For splicing belts from 14" to 50" wide.

**MEASURING COUNTERS**
Measures abrasives for belts quickly and in little space also

**HIGH GRADE ABRASIVES**
in rolls for all industries.
"YOU SAVE EVERY WAY WITH ECONAWAY".

Write for free literature

U. S. and Foreign Pat's. Manufactured and Distributed by:

**ECONAWAY MANUFACTURING CO.**
722 North Main St. Bellevue, Michigan

**EDMONT CASE NO. 530:** For handling rough lumber, $1 a pair leather gloves lasted 12 shifts. Edmont recommended a tough, vinyl-coated glove (No. 303 Monkey Grip) which wore 22 shifts, cutting glove costs 64%.

## Job-fitted glove cuts cost 64%

No. 303
fully coated knitwrist

In case above, the Edmont-recommended glove outwore leather nearly 2 to 1 because it fit the job. Edmont's special vinyl coating has outstanding resistance to abrasion and reduces hand injuries resulting from penetrating slivers. Perfect hand fitting pattern assures comfort and dexterity.

**Free Test Offer to Listed Firms:** One of our more than 50 types of gloves is job-fitted for your operation. Describe the job, materials handled, temperature condition. We will supply samples of the correct glove for on-the-job testing.

**Edmont JOB-FITTED GLOVES**

**Edmont Manufacturing Company**
1246 Walnut Street, Coshocton, Ohio
*In Canada write MSA, Toronto*

**FOR ALL WOOD BORING APPLICATIONS**

## NEW GAYNES HYDRAULIC-FEED AUTOMATIC
**Multiple-Spindle**
## VERTICAL BORING MACHINE

Wonderful new versatility . . . fully automatic operation . . . and the easiest set-up you've ever worked with combine to make this new Gaynes Borer the ideal machine for speed and accuracy! All-steel "open frame" construction, high-speed precision bearings, top quality throughout—all at moderate prices.

**Gain with GAYNES SUPERIOR CONSTRUCTION FEATURES:**

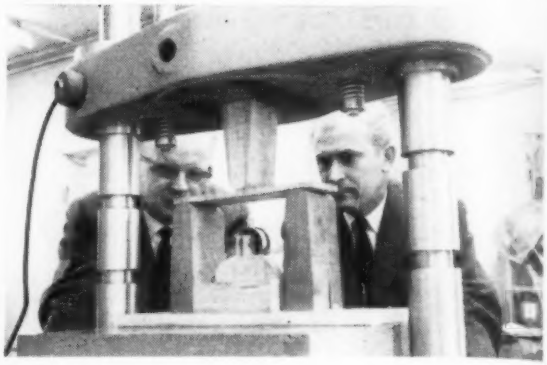
- Simple hydraulic control — 6 to 18 strokes per minute
- Straight line to staggered out-of-line, 0 - 6" over boring surface
- Table remains at pre-set height—bits travel into work
- Each spindle individually motor driven
- Max. drill depth 3"; max. boring area 72" x 6"; stroke adjustable 0 - 6". Capacity: ¾" in hardwood
- 1-YEAR GUARANTEE ON PARTS AND SERVICE

*Write for complete information today*

**GAYNES ENGINEERING CO.**
1644 W. FULTON ST. • CHICAGO 12, ILLINOIS
*Designers & Builders of Special Woodworking Machinery*

ments to be made on the half million dollar fine hardwoods exhibit, "A World of Hardwoods," at Chicago's Museum of Science and Industry.

The exhibit, to which many branches of the hardwood industry contribute, was formally opened March 19, 1953 and since then it has attracted well over eight million visitors from virtually all parts of the world. It occupies 10,000 square feet of space, only one exhibit in the museum being larger, and is one of the most popular sections of the museum.



*Hardwood particle board undergoes tests. Dr. Otto Suchsland (left) and Dr. Aubrey Wylie, forest product researchers at Michigan State University, put one of the new elm particle boards through the bending strength test.*

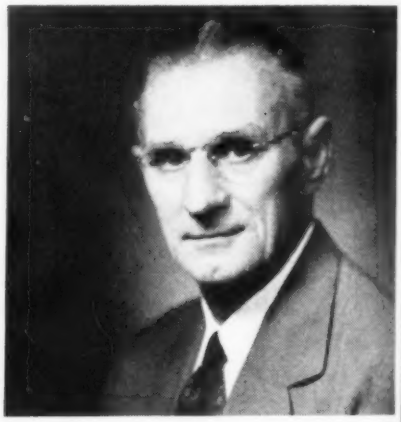
## Particle Board Laboratory

A laboratory for fabricating and testing particle boards of hardwoods has been set up at the Michigan State University Department of Forest Products. The project will include determining the properties of hardwood particle boards and checking the possibilities of developing markets for boards made of Michigan hardwoods.

Laboratory facilities include a flaker, hammermill for reducing size of flakes, flake drying chamber, glue mixer, automatic hot press and tester for strength properties. Elm is being used in the preliminary particle board tests at Michigan State.

## Rishell Retires

Carl A. Rishell, vice-president, Timber Engineering Co., Washington, D.C., recently announced his retirement. Mr. Rishell first joined the National Lumber Manufacturers Association, in 1934. In 1943 he assisted in the establishment of the TECO wood products research laboratory, and served as director of research for both TECO and the National Lumber Manufacturers Association.

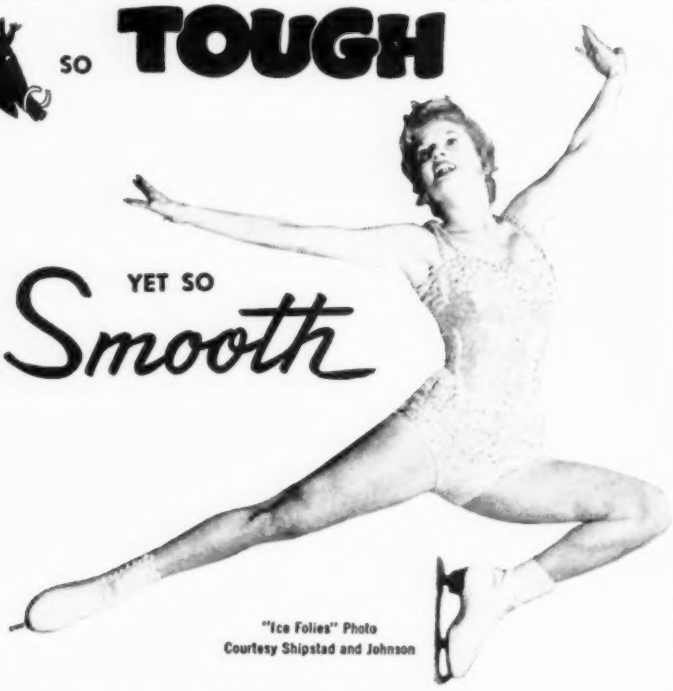


After his retirement, Mr. Rishell will undertake consultation work on specific wood research projects or problems for a small group of clients, including the Timber Engineering Co.

*Coming Next Month!*

A complete report on the Southern Pine Association's Machinery Show and Annual Convention, April 11-15, New Orleans.

SO **TOUGH**

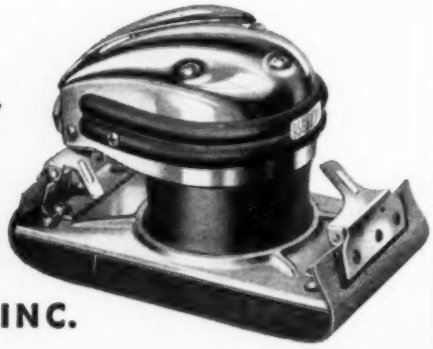


YET SO *Smooth*

"Ice Follies" Photo
Courtesy Shipstad and Johnson

NATIONAL NS SANDERS

**National Sanders are built for TOUGH operation on busy production lines. As they are vibrationless, light weight, and easy to operate, they produce the *Smooth* surface so essential to a fine finish. For the woodworking industry National makes a complete line of electric or air driven sanders with straight-line or orbital action. Both single and double-pad air sanders are available. The popular Model 400 is shown below. Write for NEW folder today.**



*National Sanders*

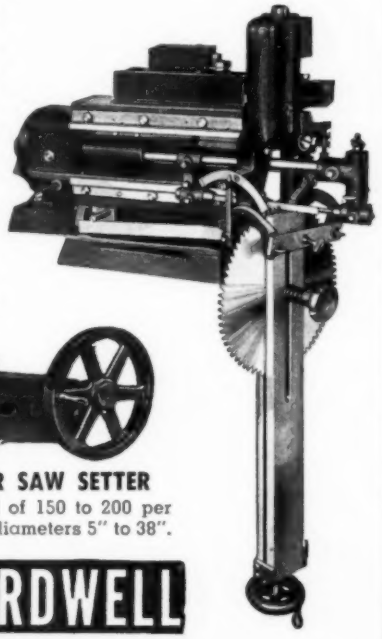
**NATIONAL-DETROIT, INC.**
**ROCKFORD, ILLINOIS**

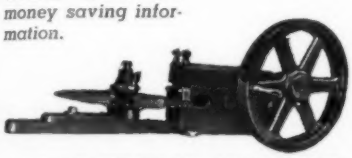
## A WARDWELL EXCLUSIVE!
### "Y 18" with Automatic Swivel

Only Wardwell "Y 18" has this all-important feature. Saves one operation by eliminating second "set up." Sharpens and bevels each tooth as it comes along. Works equally well on cross cut or rip saws. All bevels are perfectly uniform. All points are balanced with saw to insure perfect cutting circle.

"Y 18" will save money for you—increase production and profits.

*WRITE NOW for money saving information.*





**AC 38 CIRCULAR SAW SETTER**
sets teeth at a speed of 150 to 200 per minute on saws with diameters 5" to 38".

**WARDWELL**
MANUFACTURING CO.
3896 RIDGE ROAD
CLEVELAND 9, OHIO
Makers Of Largest Line Of Saw And Tool Sharpening Machines.

## Custom WOOD CARVING
### *AT ITS FINEST*

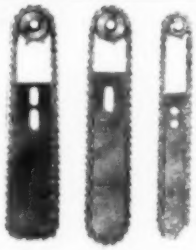
More than thirty five years of quality craftsmanship.

A complete staff of experienced personnel . . . precision equipment for multiple and hand carving.
Finest kiln dried woods available from our stock.

Send us your blueprints or models for your volume requirements
Prompt quotations • Dependable service

*Acanthus Wood Carving Company*
734 N. MORGAN STREET, CHICAGO 22, ILLINOIS • SEeley 3-6171

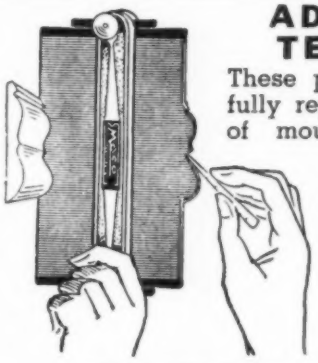
## CHAIN MORTISE
### *for Low Cost In Stock*



Send for Catalog Today
*No Obligation*

**U.S. CUTTING CHAIN MFG. CO.**
95 SPARK STREET ★ BROCKTON 64, MASS.

## ADJUSTABLE TEMPLATES



These profile gauges faithfully reproduce all patterns of mouldings, wood patterns, etc. Used by woodworking plants, ship builders, coach builders, artificial limb plants and many others. Write for prices.

**WOODWORKERS' TOOL WORKS**
224 S. JEFFERSON STREET CHICAGO 6, ILLINOIS

## TANNEWITZ AUTOMATIC GAUGE
### for Swing Saws
**SAVES** $30 to $50 A MONTH IN LUMBER AND LABOR

*30 Days Free Trial*

ORDER NOW OR SEND FOR CIRCULAR

**TANNEWITZ WORKS**
GRAND RAPIDS
MICHIGAN
DEPT. 4

**HAND CLAMPS**
NELS J. BILLSTROM INC.
Rockford, Ill.

# Available Literature

## Catalog Shows Complete Line

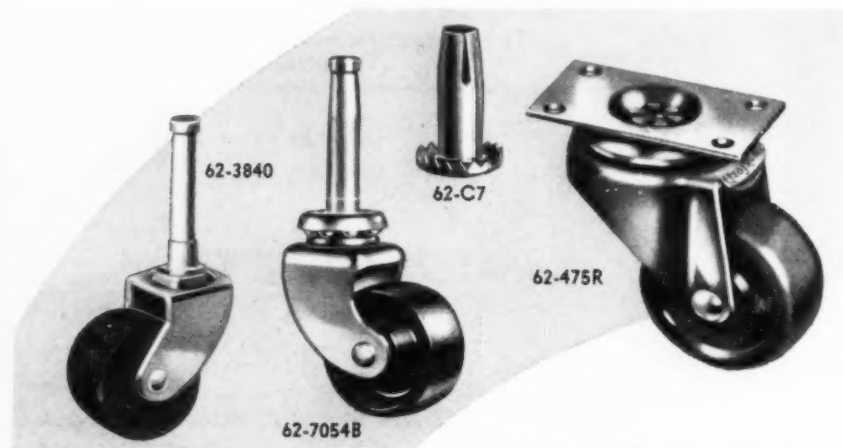
A new illustrated brochure covering the complete line of Union woodworking equipment and machines has been published by the Union Tool Corp.

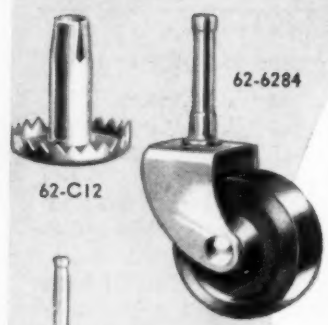
Covered in this publication are the Union roto-gluer, electro-gluer, finger-joint bonding line and hi-frequency shuttle press—all automatic machines utilizing high-frequency electronic beams. Also included are roller coaters, clamping machines, glue spreaders, conveyors, paint applicators lifts and stackers, and hand grainers.

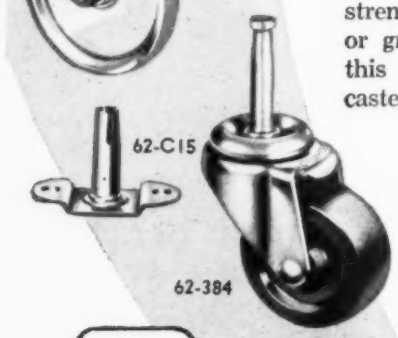
Products manufactured by Union's affiliated companies are listed as a part of the brochure. These are: vertical, horizontal and double-end boring machines, double-end chucking machines, straight and angle cutting chop saws, scroll sanders, automatic belt sanders and related equipment produced by Indiana Foundry, Machine & Supply Co., Brazil, Indiana. Products manufactured by J. D. Wallace Co., Inc., Warsaw, include band saws, table saws, production shapers, profile routers, routisers, jointers, finger-jointers and related machines.

The new brochure may be had on request by writing the Union Tool Corp., 900 N. Detroit St., Warsaw, Indiana.

Use postpaid card. Circle No. 25




Fine Furniture features CASTERS by NATIONAL LOCK

Many years of experience with the furniture trade make National Lock a proven-dependable supplier for quality-built Casters, Sockets, Glides and Leveling Screws. Plate, Heavy Duty, Furniture and Utility Casters are available. They're equipped with plain stem or double-race ball bearings . . . phenolic, rubber, steel, black maple or clear polystrene wheel materials . . . top bearing or grip neck type sockets. Investigate this one-source supplier for all your caster and other hardware requirements.

HANDLES • PULLS
LATCHES • CATCHES
LOCKS • HINGES
SCREWS and BOLTS

NATIONAL LOCK COMPANY
Rockford, Illinois Industrial Hardware Division


## Help In Selecting Abrasives

A new, practical information kit to make it easier to specify and order coated abrasives is now available at the Carborundum Company. In the kit is a Buyer's guide Form A 1506, with convenient reference tables and forms for listing your requirements; Selector Chart for Woodworking Operations, Form A 1508; and a brochure, Basics in Coated Abrasives for the Woodworking Trades, Form 1510.

Brief, factual, classified for quick, easy references, any or all of the kit is available on request at Carborundum, Niagara Falls, New York, or Toronto, Ontario.

Use postpaid card. Circle No. 26

## New Booklet Tells Story of Walnut

The physical properties of walnut, the wide variety of figure types available in veneers and methods of finishing are discussed in a colorful new brochure, "American Walnut," just published by the American Walnut Manufacturers' Association, 666 Lake Shore Drive, Chicago 11, Ill.

The brochure is especially intended to help retail furniture dealers and their staffs increase sales by giving them a comprehensive background of walnut facts.

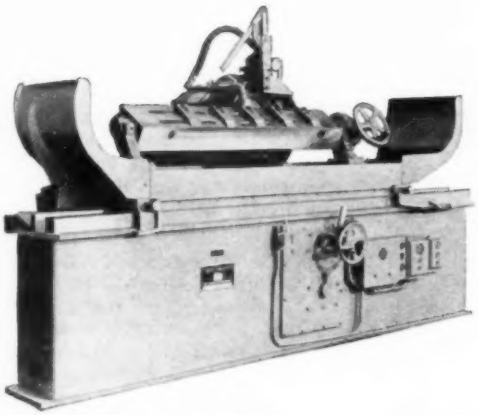
Walnut is made at the mill level in more figure types than is any other wood, the booklet reports. Included are 24 general figure and grain categories, plus dozens of variations for special effects.

Walnut, "the aristocrat of fine cabinet woods," owes its long-held position of leadership to a unique combination of natural beauty and desirable physical properties, the booklet explains. Charts covering the five leading furniture woods are used to illustrate walnut's high rating for supporting strength, rigidity, shock resistance, bending strength and hardness.

The brochure points out that walnut can be finished in many ways. The greatest volume of furniture is in the natural brown tones. Light brown tones can be obtained either through a simple bleach with stain added or by applying a light pigmented toner. Either way, the grain remains prominent. Stains or linseed oil, or both, are used for darker tones.

One of the booklet's interesting features is a chart which shows furniture trends for three centuries in terms of major styles and woods used. Another chart shows the popularity cycles of

# ROGERS
## KNIFE GRINDERS



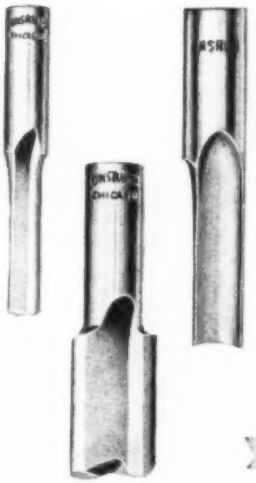
NT

SIZES: 32" to 190"
MOTORS: 5 H.P. to 15 H.P. Heavy Duty
WHEELS: 14" Dia. to 20" Dia. Cylinder Or
DRIVES: Mechanical or Hydraulic
COMPLETELY AUTOMATIC.
Lubricator, Wet Grinding, Guards and Controls.

**SAMUEL C. ROGERS & CO., INC.**
2070 Sheridan Drive — Buffalo 23, N.Y.

---

# DOUBLE YOUR CUTTER LIFE



The Special alloy high speed steel in Onsrud bits makes possible a finer, more serviceable cutter for smoothest work. The bits are carefully ground to correct clearance, tempered in modern controlled atmosphere electric furnaces, to insure uniformity and accuracy. These bits can usually be relied upon to give from 2 to 3 times the cutting performance of most ordinary routing bits because of their high tensile and transversal strength.

*Write for illustrated BULLETIN and PRICES.*

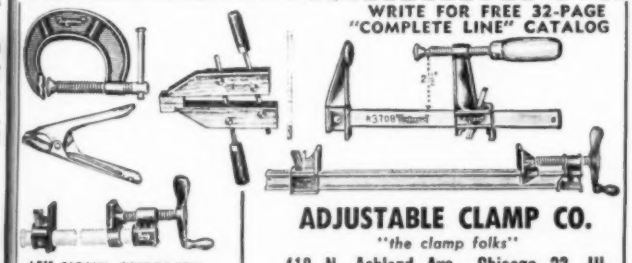
Onsrud

**ONSRUD CUTTER MANUFACTURING CO.**
801-21 E. Broadway • Libertyville, Illinois

---

"Jorgensen" and "Pony"

# CLAMPS



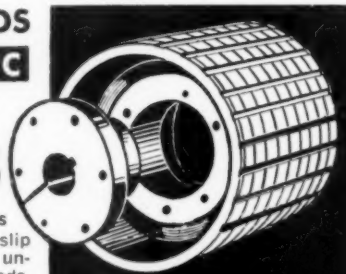
WRITE FOR FREE 32-PAGE "COMPLETE LINE" CATALOG

ASK YOUR SUPPLIER

**ADJUSTABLE CLAMP CO.**
*"the clamp folks"*
418 N. Ashland Ave., Chicago 22, Ill.

---

For **SHOCK LOADS**
**REPUBLIC**
*Never-slip*
# PULLEYS



**With QD or fixed-bore hubs**
Tire-tread surface of Never-slip pulleys stops belt slip even under intermittent machine loads. Belts and pulleys last longer. No belt dressing required. Recommended for saw mills, planers, etc., where momentary overloads are common.

Also single and multiple **V-BELT PULLEYS** in durable cast iron

Best replacement for any FLAT BELT PULLEY 3½ to 12" sizes in stock

**REPUBLIC**
ENGINEERING AND MFG. CO.
611 So. Snelling, St. Paul, Minn.

---

*FASTER • TOUGHER • TROUBLE FREE!*

# SUPREME BAND SAWS

**SUPREME BAND SAWS cut faster . . . have increased cutting capacity with minimum breakage! Present day high speed equipment demands Supreme Saws. Free from kinks and imperfections. Made from the finest Special Nickel Alloy Steels, tempered for toughness . . . to stay sharp! There is a Supreme Band Saw for every industry . . . for every material. Special purpose saws are made to order.**

Quick Service
REPAIR & RENEW
CARBIDE-TIPPED
CUTTERS

**SEND US YOUR CARBIDE-TIPPED KNIVES, CUTTERS, ROUTER BITS**

We will promptly repair, retip and sharpen your Carbide-Tipped tools and get them back to you without delay. Skilled workmen and precision equipment insure fast service and complete satisfaction in restoring cutting efficiency.

**PROMPT . . . DEPENDABLE SERVICE**

**THE SAW & KNIFE SPECIALTY CO., INC.**
6526 CARNEGIE AVENUE • CLEVELAND 3, OHIO

major furniture styles for the past 25 years, on the basis of showings at the big markets.

Use postpaid card. Circle No. 27

## Ideas For Hardboard

A four-color folder of hardboard ideas describes uses of Weyerhaeuser's Silvatek line of hardboards in home interiors, for new construction and remodelling. Illustrations cover decorator-developed ideas for playrooms, recreation areas, workshops, storage spaces and garages. All are worked out in Weyerhaeuser's versatile Silvatek line of hardboard. Product specifications are included for all items in the line: Standard Weytex, Tempered Weytex, Weylite (a lower density board), Perforated Weytex, and Weybase (floor underlayment).

Write for your copy of "Hardboard Ideas," to Silvatek, Box S, Weyerhaeuser Timber Company, Tacoma, Washington.

Use postpaid card. Circle No. 28

## Knife Grinding Manual

A book titled "Knife Grinding and Woodworking Manual" contains much valuable information on the operation of woodworking machinery. The book is written in clear, concise, everyday "shop talk" language and is intended for the actual machine operator as well as the plant superintendent, foreman, and engineer.

The book discusses molder operation; molder and planer stoppages and their remedy; machining defects in wood and their remedy; cutting speed, feed speed, and energy consumption of machining wood; the correct method of grinding, balancing, setting and jointing knives; use of proper cutting angels and bevels on knives; selection and care of cutterhead and knives; composition, use and care of grinding wheels; wood defects of all types; structure of wood; common woodworking pattern names; lumber abbreviations; safety and other worthwhile subjects.

The "Knife Grinding and Woodworking Manual" is 10" x 11", contains 167 pages with 187 action pictures, charts and drawings, and is the first book expressly written in the machine operator's language. Author of the book is C. G. Monnett, Jr.

Copies of the book may be ordered from Mr. Monnett. His address is P.O. Box 840, Greensboro, N.C.

## Delta Power Tools

A newly revised 88-page catalog, describing the world's most complete line of industrial power tools and accessories has been issued by the Rockwell Manufacturing Company's Delta Power Tool Division. Some of the industrial tools described are Delta's line of drill presses, grinders, shapers, planers, jointers, metal and wood cutting lathes, tilting arbor saws, unisaws, band and radial saws.

Complete specifications, catalog listings and descriptions of accessories for all tools are included in the bright, two-color catalog. Action photos and drawings supplement the text.

For a copy of the catalog write Rockwell Manufacturing Company, Delta Power Tool Division, 497 N. Lexington Avenue, Pittsburgh 8, Pa.

Use postpaid card. Circle No. 29

## How To Stack and Load Corrugated Boxes

Nine basic rules for efficient stacking and loading are thoroughly discussed in a new edition of "How To Stack and Load Corrugated Shipping Boxes," a booklet published by Hinde & Dauch, Sandusky, Ohio.

New copy and detailed illustrations describe effective methods of estimating storage space, distributing load weights, handling, identification, and the use of gates, bulkheads, barricades and weatherstripping.

A copy of the new 16-page booklet—number two in the H&D Little Packaging Library series—is available on request to Hinde & Dauch, Sandusky, Ohio.

Use postpaid card. Circle No. 30

## Floor Truck Selector Chart

A circular to aid in the selection of 4-wheel floor trucks for a wide variety of special and standard materials handling jobs is now available free from Lewis-Shephard Products, Inc. Designated as Circular 29-D, the two-color, six-page presentation describes and pictures some 52 different Lewis-Shepard floor trucks. Included are trucks with replaceable wooden decks, roller platforms, V-type decks, removable end and side racks, spring-loaded decks and steel shelving.

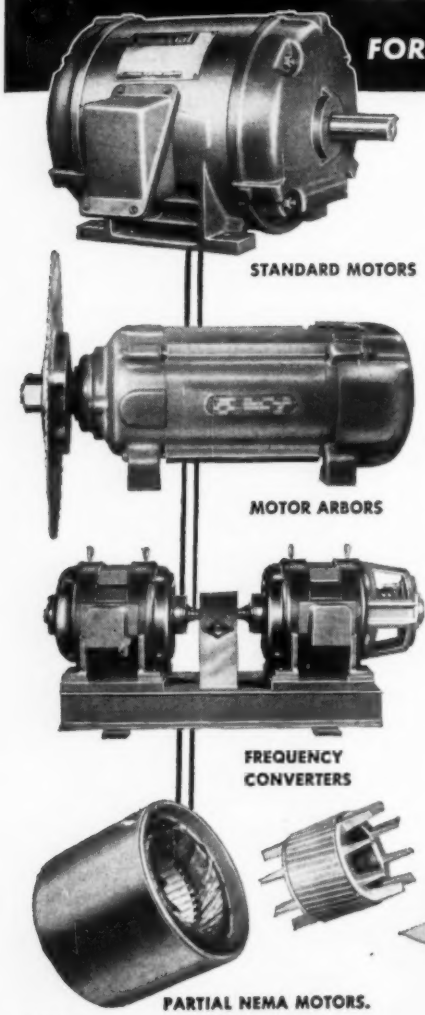
For copies of Circular 29-D, write Lewis-Shepard Products, Inc., Department R8-18, 125 Walnut Street, Watertown 72, Massachusetts.

Use postpaid card. Circle No. 31


STANDARD OR SPECIAL PURPOSE . . .

Look to IMPERIAL

FOR ALL YOUR MOTOR NEEDS




3012

It's an obvious fact that greatest efficiency and economy can only result from using a motor that is mechanically and electrically fitted to its application. In the Imperial line you'll find a standard or special purpose integral horsepower motor that is precisely engineered to fit virtually your every need. Illustrated are four Imperial units which find wide application in the woodworking industry. Many variations are available in mounting dimensions, rotor bores, and electrical characteristics. In fact Imperial can tailor a motor to your most exacting requirements. So whatever your motor requirements are, call on Imperial . . . and be assured that every Imperial motor you buy will be electrically and mechanically right for the job it must do.

For immediate help on a specific motor problem call your Imperial representative, or write Dept. I W-1 . . .

Since 1889

THE Imperial ELECTRIC CO.

AKRON 9, OHIO

# the market place *for*

- SERVICE
- EMPLOYMENT
- USED and REBUILT EQUIPMENT

RATES: $7.50 for name, address and a 5-line advertisement. Additional lines 75c. Display Advertising: 1" (minimum) $8.50; 2" $17.00; 3" $25.00. Additional inches, $8.00 per inch. Quarter pages and half pages available at regular space rates. Write for details. Closing date, 15th of month preceding publication.

## FOR SALE
### S. W. Harrington, Inc.
**P. O. Box 230** — **Asheville, N.C.**

Air Compressor, Ingersoll Rand ER,1—10x10 complete
Air Compressors, various sizes
Band Saws, F & E No. 58, 42" BB, Vee-belt
Band Saws, American 40", BB, V-belt & motor
Band Saws, New Delta 20" bb, dmd
Borers: Amer. 2 spdle radial dmd
Borers, Greenlee No. 386, 8 Ft. Vert. 8 Spdles. DMD
Borers, Andrews Sgl. Spdle, dmd
Borers, McKnight 88C, Chucking DMD
Borers, Oliver 71E—3 spdle, horiz. dmd
Borers, Root D-360 horiz. 13 spdles dmd
Borers, Root, vertical 4 ft. univ. spdle. dmd
Carvers, Porter b.b. dmd
Clamps, Lancaster No. 100C Case
Clamps, McKnight Chair
Clamps, Bilistrom 29 sec., 6 clamps sec.
Clippers, Capitol 48" DMD
Clippers, Coe 88" bd and motor
Dovetailers, Dodds 10 & 20 Spdles.
Dowel Mach., Bell No. 4A and Pointer
Frequency Changers, 25-33-75, DMD
Glue Jointer, Yates No. 213 & Jenkins 343A, bb, dmd
Glue Spreaders, Francis 12" Sgl. Roll, V-drive
Grinder: Buffalo 76" knife dmd
Jointers, New Moak 12", bb, dmd
Jointers, 8" and 16", 24" & 30"
Whitney, back knife, BB, V-drive
Lathes, Mattison 55C, Auto, BB DMD.
Mortisers, W & M No. 287, 6 Spindle Horiz, BB BD.
Mortiser, New Britain No. 7 bd. & motor
Mortiser, W&M No. 288, 5 spdle, horiz. DMD
Moulders, Y-A, C-75 8" bb, dmd.
Moulders, Y-A C89—6" Electric BB, DMD
Moulders, Hermance 12" BB, BD & Motor
Moulders, Vonnegut12", BB, DMD
Moulder, XL—4" BB., DMD.
Planers, 40" Single, BB, DMD.—Whitney
Planers, F & E—30" double pb. bd. & motor
Planers, Berlin 36" round head dmd.
Planers, Buss No. 4—30"-36" and 44" single, bb, dmd
Planers, Buss 30" double, bb vee-belt & motor
Planers, Y-A No. 186, Dbl. 20" MD
Planers, Yates No. 177 30" bb, dmd
Facing Planers, 30" & 36" bb, dmd
Facing Planers, 24" bb, dmd
Planer-Matcher, Yates A1-15"x6" round heads, pb. bd.
Redrier, Merritt 12 plate 36 x 72
Router, Porter No. 612, BB, DMD.
Sanders, Amer. No. 11, 12" horiz, BB, DMD
Sanders, Jefferson Hand Block dmd
Sanders, McKnight Sgl. Drum 24 x 16 dmd.
Sanders, Nash No. 21-10 spdle. & No. 10-6 spdl. v-dr.
Sander, Pearson Sgl. Spdle Vert. dmd.
Sanders, Indiana Scroll, DMD
Sanders, Mattison No. 172 Edge belt, dmd
Sander, Mattison No. 124 stroke
Sanders, Niagara brush, bb, dmd
Sanders, Oakley, Drawer, MD
Sanders, F & E 60" 3-drum roll feed, dmd
Sander, W & M No. 171 belt bb, md
Sanders, Yates No. 431, 43" End Bed DMD 2 & 3 Dr.
Sanders, Yates-Amer. 433—43" 3 Drum, E.B. BB DMD.
Saws, American No. 1 gang rip, bb, dmd
Saws, Mattison No. 205 bb, dmd
Saws, Mattison No. 207—BB, V-drive
Saws, Eaglesfield Swing cutoff, bb, dmd
Saws, New Delta-Crescent 12" tilting arbor dmd
Saws, New Multiplex Radial
Saws, Tannewitz, TT, Var, BB, DMD,
Saws, Whitney, Var, T.A. BB, DMD
Saws, Wilkins-C No. 87 dbl. cut-off saw, 60x100", BB. DMD
Shapers, Beach Sgl. Spdle BB DMD
Shapers, Onsrud, Auto, BB, DMD, W50
Shapers, Porter No. 103C Sgl. bb, dmd
Shapers, Whitney Auto. dbl.
Shapers, Whitney No. 389, double bb, dmd
Shapers, Whitney Dbl. Spdle. MD BB
Shapers, New Moak single spindle, bb, dmd,
Sticker, American No. 1, 1 side 4" pb. bed
Taping Machines, Dennis No. 2
Tenon Heads, single and double end
Tenoners, Amer, Single End, W/Copes, W/Motor
Motors, Electric, all sizes
Miscel: Bell No. 8 Dowel Driver & Gluer, DMD.
Miscel: Acme Bed Rail Boring & Slotting, DMD.
Many other items, send your inquiries

## FOR SALE
### Woodward Machinery Company
**309 E. Second St. — Cincinnati 2, Ohio**

Belt Sander: Delta 6-in. vert. & horiz., $100
Blower: Shavings 40-in., $100
Borer: Andrews hor. 7 spdl. MD, $185
Dovetailer: Dodds 20 spdle., $600
Glue Spreader: Black Bros. 14-in. Dbl. M.D., $125
Jointer: 12-in. heavy duty, $160
Jointers: Delta 6-in., $67.50
Jointer: 18-in. B&M MD, $150
Lathe: Back knife gauge 18-in., $185
Lathe: Wood 12-in. MD, $75
Molder: American 10-in. 4 side, $550
Molder: Newman 9-in. 4 side, $375
Mortiser: NB chainsaw, many chains, $250
Planer: Parks 12-in. Lt. BB MD, $185
Planer: 26 MD in Mo. $350
Planer: Parks 12-in. Lt. BB MD, $185
Radial Saw: Multiplex 5 HP 3 ph. $300
Sander: Egan 24-in. two drum, $300
Saw: Beach variety, 5 HP Mtr., $135
Sticker: Hayes sash & door sgl., $185
Swing saw: American BB DM, $125
Variety Saw: Parks, tabletype, $75
Numerous other machines

16' VENEER JOINTER — MERRITT TRAVELING HEAD, 2-DIRECT MOTOR DRIVE HEADS, HYDRAULIC HOLDDOWN, NEW 1943, PRICE $10,000.00 F.O.B. PLANT, SUBJECT TO PRIOR SALE

**wilco machine works, inc.**
Municipal Airport • Memphis, Tenn. • WH 8-4555

Frequency Changer, G.E., 50 K.W., 220 or 440 Volt, 100 or 120 Cycles with matched magnetic controls. Rewound in new condition.

**NORTHWEST CHAIR COMPANY**
P.O. Box 1115 — Tacoma, Washington

**KILN-DRIED MAPLE BLOCKS**
Large diameters, specialty rough turned, pre-copied, pre-cut readied for finish lathe work.
Write Box 619
Hitchcock's Wood Working
Wheaton, Illinois

**Industrial Wood Parts**
Save production time, costs and space with Weyerhaeuser pre-cut wood parts! Parts processed to your requirements, cut-to-size, molded, edge-glued, surfaced. No waste, lower freight, faster assembly. Write for details.
**WEYERHAEUSER INDUSTRIAL WOOD PARTS**
400 W. Madison — Chicago, Ill.

## FOR SALE
SOFT MAPLE PANELS, edge glues, manufactured from Silver Maple. Also CORE STOCK, OAK BED RAILS, edge glued.
**ROBERTSON MANUFACTURING COMPANY**
Box 688 — Phone 3378 — Moberly, Mo.

**USED AND REBUILT MACHINES**
**PRICED FOR QUICK SALE FROM STOCK**

Band Mill—54" ball brg., right hand, with carriage
Band Saws—Walker Turner 14"; Fay & Egan No. 950 and No. 345; Bentel-Margedant 36"; Sidney 36"; Tannewitz 42"; Yates-American 36"
Band Resaws—Mershon 60"
Blower—American 30" fan
Borers—single; multiple—vertical or horizontal
Glue Jointer—Fay & Egan No. 429
Glue Clamps—Handy 24"x49" miter clamp; Hayes door clamp
Hand Planers & Jointers—Fay & Egan No. 316 16"
Lathe—Walker Turner
Moulders & Stickers—Mattison No. 229 all-electric; Hermance 6" ball brg.; Hermance 12"; Fay & Egan No. 209 and No. 226
Mortisers—Fay & Egan No. 924; American No. 20 Hollow Chisel; Sidney "Famous"; Greenlee No. 228 Hollow Chisel; New Britain No. 7 Chain
Planers—Whitney No. 32 30"; Hermance 30"; Whitney 26"; Oliver No. 199 E 24"; Buss 4 L 24" with grinding and jointing equipment, sectional roll and chipbreaker; Whitney dbl.; American No. 666
Planer & Matchers— Live Power 24" ball bearing
Sanders—No. 433 Yates-American 42" 3-drum Endless Bed, ball brg.; also dbl. end spindle
Saws—double cut-off; chain feed rip; combination and variety; swing cut-off
Shapers—American No. 30 double spindle; Fay & Egan No. 252; Whitney No. 134 double spindle
Spindle Carvers—C. O. Porter; Gallmeyer & Livingston
Router—Onsrud No. W 240

**WILL PAY CASH FOR**
Single Machine or Entire Plant. All makes, models, sizes
Write, wire or phone Today!
**FAY & EGAN CO.** • Tele. PL 1-0730
2023 Eastern Ave., Cincinnati 2, O.
Factory Rebuilt Machines

## FOR SALE
W122 Onsrud Automatic Shaper, 7½ H.P., DMD with 8 Station Clamps & Center Clamp
WA50 Onsrud Automatic Shaper, 10 H.P., BD with 8 Station Clamps
WA50A Onsrud Automatic Shaper, 15 H.P., BD with 8 Station Clamps & Center Clamp
All machines fully equipped and guaranteed in A-1 condition.
Also build forms and manufacture airclamps for Onsrud & Whitney Automatic Shapers.
**Write for Bulletins and Information**
**KARL GUSFRE**
3425 Fullerton Ave. — Chicago 47, Illinois
PHONE SP 2-1082

## FOR SALE
(located in Tennessee)
Two drum belt sander (Danckaert)
Greenlee (426) gang rip saw
Vonnegut buffer and sander
Fay & Egan 10" B B moulder
**TENNGLAD CORP.**
(private owner)
837 Union Street — Brooklyn, New York

**Do You Need Kiln Dried Cabinet & Trim Woods?**
Immediate shipment from our mill—
Walnut, Cherry, Teak, Prima Vera, Limba, Mahogany, Butternut, Birdseye Maple.
Thirty-five species in all thicknesses—write for list and description.
**CHESTER B. STEM, INC.**
439 Grant Line Road, New Albany, Ind.

## NEW & USED REBUILT
Bandsaws, planers, tenoners, mortisers, sanders, self-feed rip saws, clamps. Send for our complete stock sheet.
**AMERICAN MACHINERY EXCHANGE**
2044 W. Lake St. — Chicago, Ill.

# Good Machinery doesn't cost . . . IT PAYS!

**BAND SAWS**
CRESCENT 20" B.D.
DELTA 20" B.D.

**BORERS**
GREENLEE No. 386C—12'—15 Sp.
NEWTON No. 100—2 Sp.

**CLAMPS**
BILLSTROM 29 Sec. 10' 6" 26" Clamps
100—30" Retaining Clamps

**CLAMP CARRIERS**
BLACK 6' wide 40-sec. 30" clamps per section

**JOINTERS**
NEWMAN 16" D.M.D.
NEWMAN 16" D.M.D. (New)
NORTHFIELD 12"—3 H.P. D.M.D.
DELTA 6" & 8"

**MORTISERS**
WYSONG & MILES No. 284
NEW BRITAIN No.5—Chain

**MOULDERS**
EKSTROM-CARLSON No. 468—12" All Electric V.-B.D.
FAY & EGAN No. 215—8"—B.B.B.D.
YATES—No. C-3—4" B.B.B.D.

**PLANERS**
CRESCENT No. P—24—7½ H.P.D.D.
WHTNEY No. 32—30" D.D.S.C.B. & S.F.R. & M.KG
NEWMAN No. 600—24" D.M.D. (2-
POWERMATIC 16"—B.D.
NORTHFIELD 24" D.M.D.—Pony

**ROUTERS**
ONSRUD No. 240—(New)
ONSRUD No. W-113—D.D. with Frequency Converter
ONSRUD No. W-106—Pneumatic

**SANDERS**
BEACH No. 201 H.B.
CURTISS No. 43R3—Automatic 8'—like new
YATES 42" Roll Feed 3 Drum Belt Drive
FAY & EGAN Combination 24" Disc and Spindle

**SAWS—CUT-OFF**
YATES-AMERICAN No. G-44—Swing
MULTIPLEX B-60 5 H.P., 3 Ph.
SKILSAW 2 H.P., 1 Ph.
MULTIPLEX 3 H.P., 3 Ph.

**SAWS-RIP**
DEPENDABLE No. 114 Gang, 15 H.P. D.D.
DIEHL No. 750—15 H.P.
MATTISON No. 202—15 H.P.D.D.—Late
MATTISON No. 207—10 H.P.—D.M.D.

**SAWS-VARIETY**
CRESCENT Tilting Table Belt Drive with Horizontal Boring Attachments
AMERICAN No. 1 Tilting Table Belt Drive
DELTA 12" Tilting Arbor (New)
OLIVER No. 88D, 7½ H.P.—D.D.—Late Type

**SHAPERS**
BEACH No. 7—Single Spindle 3 H.P. F.L.B.D.
ONSRUD No. W-125 Automatic 12½ H.P. D.D. with Frequency Converter
WHITNEY No. 139 Double 5 H.P. Belt Drive
YATES-AMERICAN No. N-4 Single Spindle V-Belt Drive

**TENONERS**
MILLBURY—Floor Model

**MISCELLANEOUS**
COUEL Knife Grinder 36" table—24" wheel
DOIG 4 Track Nailer
PHELPS No. B-50" Fan
WARDWELL Saw Gummer
ONSRUD No. W-12 Lumber Stretcher
Hopper Feed for 12" MATTISON

**If you don't see what you want—write, wire or phone. If we don't have it we can get it.**

## NICHOLAS and PARKS

MACHINERY COMPANY, 2800 COMMERCE, P. O. BOX 5729, DALLAS, TEXAS, RI 1-3246

*Send us your name and address to receive our regular mailing of new and used equipment available.*

---

## NAILING MACHINE

96" Doig Cable Reel
Nailing Machine
Almost New
$10,000.00

YATES AMERICAN
12 Spindle
Boring Machine
Excellent condition
$5,000.00

Duty Free in U.S.A.

**J. Hamelin Lumber & Woodwork, Ltd.**
**0760 St. Patrick Street**
**Lasalle, Quebec**

---

## PRICED TO SELL

**SAW TABLES**
Indiana Tilt Arbor Table 40" x 40"
**JOINTERS**
Sidney 12" Round Head PB
Porter 20" Round Head PB
**BANDSAWS**
Fay Egan 30" No. 155 MD
Fay Egan 42" Scroll & Resaw
Sidney 32" MD
**BORING MACHINES**
Andrews 42" Multiple
Andrews 24" Horizontal Power Stroke
Greenlee 72" No. 366 Universal
**MOULDERS**
Vonnegut 6" Motorized
R & H 9" Belt Drive
**SAWS**
Indiana-Tilt Arbor DMD 40 x 40 Table
DeWalt Radial 3 HP
F & E No. 330 Tilt Table
H & A Swing Saw
**SANDERS**
Heath Single Drum
F & E 49" DMD 3-Drum Endless Bed
Mattison Edge Belt
**MISCELLANEOUS**
Dovetailers, Lockcorner, Spindle Sander Nailers & Many Other Items From Liquidation Write Us.

**BUCKEYE WOODWORKING EQPT. CO.**
**550 W. McMicken Cincinnati 14, Ohio**

---

Hog, J. B. Sudbury
Electronic Edge Gluer, 30" x 72"
Challoner 180 Multiple Mortiser
Bell No. 24-A
Mereen-Johnson No. 416 Bottle Box Groover
Taylor 40 Section Clamp Carrier
Dodds 12 Spindle Dovetailer
Jackson & Church Swing-Out Feeding Device
Indiana Double End Boring & Chucking Machine
Handy No. 836 Laminating Press
Bell No. 8 Gluer and Dowel Driver
Bell No. 4-A Dowel Machine
Bell No. 3 Dowel, Pin Cutter and Pointer
Jenkins No. 90 Double End Tenoner
Diehl No. 65 Head Grinder
Mereen-Johnson No. 441-A Gang Rip Saw
Newman K-16 Tilting Arbor Saw
Whitney No. 239 Double Spindle Shaper DMD
Whitney No. 239 Double Spindle Shaper with Frequency Changer
Fay & Egan No. 4 Three Drum Sander
Yates-American J-50 Single Spindle Shaper
Solem 30" Endless Bed Sander, Three Drum
Sheboygan 49" Endless Bed Three Drum Sander
Vonnegut 12" Moulder
Festo 3 Spindle Moulder
Woods No. 132-M 10" Moulder
Mattison No. 229 10" DMD Moulder
Whitney 39" Double Surfacer
Whitney 29" double Surfacer
Tonks 24" Facing Planer
Parks 12" Planer

**W. W. THAYER COMPANY**
**7347 Overbrook Drive**
**St. Louis 21, Missouri**
**EVergreen 5-7483**

---

## MACHINERY FOR SALE

**BORERS**
Andrew Vertical & Horizontal Borers
Greenlee 356 Single Spindle Vertical
Root D-200 Horizontal Vertical

**CARVERS**
Porter No. 5M single-spindle, ball-bearing.

**CLAMPS & CLAMP CARRIERS**
Buss drawer clamps, hand-operated, various sizes.
Black Bros. revolving case clamps
Billstrom 7½-ft. 29-section clamp carrier, four 30-in. clamps per sec., air power-dr.
Palmer 8½-ft. 16-section wheel type clamp carrier, six 30-in. clamps per section
Taylor 7½-ft. 30-section chain type clamp carrier, four 32-in. clamps per section.

**GLUING & VENEER EQUIPMENT**
Diehl No. 89 Tapeless Veneer Splicer
New No. 300 Francis flat plate edge gluer.
Capital 42"—76" Clippers
Black 22-D double roll glue spreader, rubber roll.

**JOINTERS**
Porter 30" with Jackson & Church 4-post feeder.
Jenkins 6 and 8-ft. saw type veneer jointers.
Diehl No. 60 glue jointer.

**LATHES**
No. 57-D Mattison 42-in. automatic turning.
Smith B-42 Self Feeding

**MORTISERS**
No. 67 Whitney oscillating.
Bell No. 89 Multiple Head Chain

**MOULDERS**
Englesfield (Oliver) 4" Ball Bearing Direct Motor Dr.
Hermance 8-in., belt-drive.
Vonnegue 4", 6" & 8" Ball Bearing direct Motor Drive
Woods No. 137M 6-in. ball-bearing electric motors.

**MOTORS & FREQUENCY CHANGERS**
30-KW Westinghouse frequency changer with 20-h.p. driving motor.
25-KW General Electric frequency changer with 20-h.p. Gen. Elec. driv. mtr.
75-KW Generator with General Electric 100-h.p. driving motor.

**PLANERS**
Buss No. 208—20" Single
Park 20" single.
Buss 36" Single
Whitney 30 and 36-in. single.
No. 32 Whitney 24-in. single cabinet.
Buss 30" Double
Oliver No. 170 Straitoplane.

**PRESSES**
Handy screw press, 11-ft. x 30-in.

**ROUTERS**
Porter No. 612 two-speed, 10,000 and 20,000 r.p.m.
Onsrud W-240 2-speed sliding spindle.

**SANDERS**
Curtis Models 51 and 63, ball-bearing, direct motor dr.
No. 137 Mattison moulding.
No. 294 Wysong & Miles automatic stroke.
No. 505 Smith 61" Three Drum Endless Bed, ball with tables—Porter Hydra-Cut
Hamilton 16" Flat Bed
Porter Spindle Sander.

**BAND SAWS**
Tannewitz GH 36" ball bearing, motor drive

**CUT-OFF SAWS**
Porter Model 43-20S, both right-hand and left-hand with tables. Porter Hydra-Cut
Buss 7-ft. cabinet type double, ball-bearing, motor-dr
Jenkins No. 106 Chain Feed
De Walt Radial Arm

**MITER SAWS, Etc.**
Crescent direct motor-driven, tilt-table.
Bell No. 12 double miters—1 air operated table 1 mechanical
Dodds Titling Table

**RIP SAWS**
Diehl No. 75 chain-feed glue joint
No. 207 Mattison chain-feed.
Hermance No. 300 G-Gang

**SHAPERS**
Onsrud Type W-125 automatic.
Whitney 139 DMD Double Spindle

**TENONERS**
Tenko double-end, ball-bearing, direct motor-driven
Powermatic S.E.
Greenlee No. 545 D & E

**MISCELLANEOUS MACHINES**
McKnight Nos. 101 and 104 combination back bender and rock bndr.
McKnight No. 104, 6-opening hydraulic rocker bender
Dodds 10, 12 and 15-spindle dovetailers.
New No. 26C Ekstrom-Carlson infeed attachments.
Ross straddle carrier.
Air compressors, Curtis, Gardner
Bell No. 80 Multiple Head Chain
McKnight Corner Block Machine
Sparton Auto-Nailer
Walters Rough Mill conveyor, complete.

## MONICAL MACHINERY COMPANY

**2020 BRISTOL AVE., N. W.**
**Telephone: Glendale 8-1433 GRAND RAPIDS 4, MICHIGAN**

## FOR SALE

Hanchett GK 36" Auto Knife Grinder BB MD
American No. 36 12" x 4" Elec. Moulder
American No. 35 9" x 4" Elec. Moulder
XL Model 60 6" x 2" Elec. Moulder
Woods No. 132 10" x 4" BB BD Moulder
Fay & Egan No. 399 42" 2 Dr. EB Sdr. BB DMD
Sheboygan 2 Drum 30" EB Sander BB DMD
Wysong & Miles No. 284 Auto. HC Mortiser DMD
Goodspeed 24" x 8" Dbl Surfacer BB DMD
Hawker No. 2 BB Adj. Head Dowel Machine
M & M No. 15CSF 20" x 30" BB Hog
Morgan 48"-54" No. 18 OB Cleater DMD
Tannewitz Type J TA Saw DMD

**BOSCHO, INC.**
200 Boston Ave., Medford 55, Mass.
Phone: EXport 5-4010

## BRAND NEW

25 KW Frequency Changers—
120 cycle, 7200 RPM,
single shaft, 2-bearing type
$1295.00

**MONICAL MACHINERY COMPANY**
2020 Bristol, N.W. Grand Rapids 4, Mich.

## FOR SALE

Mereen Johnson Gang Rip Saw
No. 441 A, like new

Industrial finger jointer machinery — scarfing machines, assembly machines, and complete conveyors.

**ROBERTSON MANUFACTURING CO.**
Box 688 Moberly, Mo. Phone 3378

## FOR PENNIES

New and used stickers
6' new 5½¢, 8' new 8¢, 6' used 3½¢

**GAIENNIE LUMBER, INC.**
BOX 1774 SHREVEPORT, LA.

## REPRESENTATIVE WANTED

With established following among furniture manufacturers in New England and Middle Atlantic States to advise on and handle new line of custom and stock furniture legs. This man will have much to say on all details of the line he sells. Address replies to.....

Write Box 621
c/o Hitchcock's Wood Working
Wheaton, Illinois

## WANTED

One or more McKnight, or similar 5-6 or more plate bending presses 22" or 24" radius.

**MICHIGAN CHAIR COMPANY**
818 BUTTERWORTH S.W.
GRAND RAPIDS 2, MICH.

Woods 412 15" BD P & M No Prof.
Woods 412-M 15" Dir. Elec. P&M No. Prof.
Yates-Am. A-20 20" Dir. Elec. P&M No Prof.
Yates-Am. A-66 15" Dir. Elec. P&M No Prof.
Yates-Am. A-62 15" belt DP & 8K Prof.
Yates-Am. A-20 15" belt DP & M 6K Prof.
Yates-Am. A-20 15" belt DP&M 6K No Prof.
Newman 510 15" belt DP & M 6K Prof.
Newman 500 15" belt DP & M 6K Prof.
Newman 501 15" belt DP & M 6K Prof.
McDonough 54" Vert. Band Resaw B.B.
Mershon 54-C 54" Vert. Band Resaw B.B.
Mereen-J. 215 54" vert. band resaw B.B.
Yates-Am. 283 44" Vert. Band Resaw B.B.
Newman 412 12" MOULDER Electric B.B.
Yates-Am. C-89 10" MOULDER Electric B.B.
Vonnegut "V" 12" moulder B.B. Elec.
Vonnegut 6" Moulder Electric B.B.
Hermance 300 Gang Ripsaw Direct Elec.

Also single and double surfacers, borers, sanders, and all the rest. Come to Chattanooga and make inspection soon.

**R. K. HASKEW & CO., INC.**
Phone Amherst 6-6214
Box 4065 Chattanooga 5, Tennessee

WILCO REFUSE BURNER. Three Models. Complete Range of Sizes, Lowest-cost installation. Prefabricated, one-piece panels. Exclusive triple-draft. Sizing engineers available to you.

**WILCO MACHINE WORKS, INC.**
MUNICIPAL AIRPORT • MEMPHIS, TENN.
P. O. BOX 3722 • WHITEHALL 8-4555

## WOODWORKING FURNITURE MEN $6,000 - $20,000

We are in touch with wood products manufacturers, nationwide, who are interested in finding competent men in Factory Management, Supervision, Engineering, Administration and Sales. If you are not employed to your best capacity or have a desire to change location, write confidentially to

**JOHN COPE**
*Drake Personnel, Inc.*
29 E. Madison Bldg. Chicago 2, Illinois
Phone: FInancial 6-8700

## Guaranteed Used Machinery

Band Resaw 54" American No. 111
Band Saw 30" F & E No. 155—2 HP DMD
Boring Mchs., Andrews 3 & 4 Spdl., Horiz.
Boring Mach., Vert. Greenlee No. 356 DMD
Cut-off Saw, Crescent Straight Line DMD
Jointer, Glue, Yates No. 213, DMD
Jointer, 12" Hall & Brown with motor
Jointer, 16" Porter Type C, DMD
Lathe, Variable Speed, New Blount and Delta with motors
Mortiser Hollow Chisel, American, M.D.
Mortiser, Hollow Chisel Crescent DMD
Mortiser, Hollow Chisel, Greenlee No. 228, Power feed with motor
Mortisers, Chain, New Britain No. 1 and No. 2, Extra Chains with motors
Moulder, elec. Y-A C-89-10" with frequency changer, 5400 RPM spindle speed
Moulder, Yates No. C-4A 8" with motor
Moulder, Woods No. 129, 9" with motor
Nailing Machine, Doig No. 60C-48"—16 Track Open Back with cleater MD
Planer, Sgl., Woods No. 76M 30"x8" DMD
Planer, New Powermatic, 16"x6" single
Radial Saw, DeWalt, Model GM, 5 HP long arm
Radial Saw Multiplex No. 60—5 HP
Radial Saws, New Delta 1-2-3 and 5 HP
Rip Saw Roll Fd H&B No. 223, 10 HP DMD
Sander, Belt, Hand Block, Ind. No. 7, DMD
Sander, Edge Belt 6" W. & M. No. 315
Sander, Dbl. Belt No. 302, Wysong & Miles 7½ and 5 H.P. motors, DMD
Shaper, Sgl. Sple. F. & E. No. 252, 5 HP
Sticker, 3-side, Jenkins model 65, Sash & Door Sticker, P.&B. attach., 10 HP motor
Tenoner, Sgl. End American No. 2½ with copes and cut-off saw and motor
Tilting Arbor Saws NEW Delta 10" and 12" Motor Driven
Tilting Arbor Saw, Northfield No. 4, 5 H.P.

*Write, wire or call:*

**McDONALD MACHINERY CO.**
1535 N. Broadway St. Louis 6, Mo.
CEntral 1-9360

## WANTED

Semi-retired, experienced moulder man, should have Kiln and gluing experience. References required. Location in beautiful Central Florida.

Write Box 617
c/o HITCHCOCK'S WOOD WORKING
Wheaton, Illinois

## WANTED

A 30" or 36" Veneer Backroll lathe. Call or write:

**Mississippi Box & Crate Company**
Fernwood, Mississippi
Phone: McComb, Mississippi 3036
G. W. Thompson

## FLUID POWER / HOME STUDY COURSE

**"installation, operation and maintenance" of F/P equipment**

An up to date practical course of study covering *Theory, Fundamentals* of Operation, Application, Diagnosis and Repair, for all types of Hydraulic and Pneumatic equipment and controls.

"easy to understand"

**LOW COST**

Has impartial support of National Fluid Power Association

**Mr. Manager:** It's a sound investment to sponsor studies for your men who are interested enough to improve themselves in their jobs.

Send for: Descriptive Literature and enrollment blank.

**TRAINING for INDUSTRY DIVISION**
WHEATON, ILLINOIS

Hitchcock Publishing Company

## WANTED

Furniture Detailer. Experience on Production Woodwork. Must do own lifting. Permanent opportunity with long established, growing firm.

**Rieder Brothers**

3915 Powelton Ave. Philadelphia 4, Pa.

## WANTED

Used T-Slot cylinders and knife holders for Mattison lathe.

**John C. Kohaut Inc.**

15 Meeker St. West Orange, N.J.

## WANTED
### CUTTING ROOM SUPERINTENDANT

For high speed woodworking plant located in the South Eastern United States. Must be thoroughly familiar with planers, rip saws, resaws and cut-off saws. State age, education, experience and salary requirements.

Write Box 625
Hitchcock's Wood Working
Wheaton, Illinois

## WANTED MOULDER

Set-up man for moulding plant in Wisconsin. Give complete details of experience, personal data and salary expected.

**Write Box 629**
**c/o Hitchcock's Wood Working**
**Wheaton, Illinois**

## WANTED
### INDUSTRIAL ENGINEER

With woodworking experience for plant located in South Eastern United States. Must be thoroughly experienced in time study, incentives, standard costs, methods and production planning. State age, experience, education, marital status and annual salary required.

Write Box 627
Hitchcock's Wood Working
Wheaton, Illinois

## POSITION WANTED

Production Manager or Superintendent, experienced in manufacturing furniture, case goods, novelty, etc. Knowledge of methods, controls, costs, timestudy, etc. Age 45. Employed at present in above capacity. Reference on request.

**Box 623**
**Hitchcock's Wood Working**
**WHEATON, ILLINOIS**

## WANTED

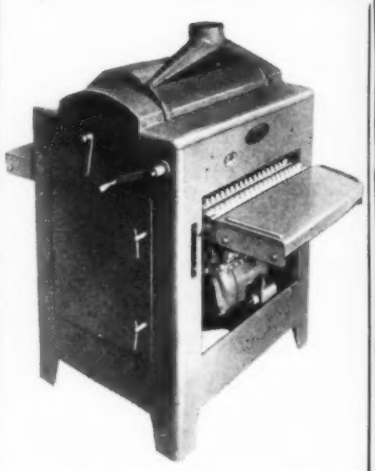
Foreman wanted for hardwood and softwood moulding plant in the State of Wisconsin. Capable of planning, scheduling work and handling men. Give complete resume of experience, personal data and salary requirements.

**Write, Box 631**
**c/o Hitchcock's Wood Working**
**Wheaton, Illinois**

## WANTED

Man to take charge of fast growing Southern Woodworking and Furniture operation. Must be capable of handling Production, Cost, Quality Controls, Etc. Prefer Engineering background. Please submit resumé of experience. Salary open.

**Reply Box 633**
**c/o Hitchcock's Wood Working**
**Wheaton, Illinois**



## BURLINGTON

**Twenty-Four-Inch**
**Single Drum**
**Endless Bed**

## SANDER

**WILL KRUMBACH CO.**

BURLINGTON, WIS.

## *Fader's 45 YEARS' EXPERIENCE WITH WOODWORKING MACHINERY IS YOUR ASSURANCE OF DEPENDABILITY*

**ALL OFFERING SUBJECT TO PRIOR SALE**

### BAND SAWS
Superior & Fay & Egan 36", motor driven
Tannewitz "RH" 42-in., ball-bearing, dlr. m.d.

### BORERS
Bell No. 100 Auto. Front & Back Post, DMD
Fay & Egan No. 312, 5 spdl. Ver., Power feed
60" Greenlee No. 366—6 Spindle Vertical, DMD
Root GM Sgl. Spdl., Vert. Pwr. feed DMD, B.B.
Superior 3-Spindle adjustable horizontal, m.d.
Valley City 2-spindle Adj. Horiz., Motor Dr.
Wysong & Miles 283-B Sgl. Spdl. Vert. DMD. B.B.

### CLAMPS—ASSEMBLY
Bell Cabt. & Chase, 60" open, air operated
Buss Drawer 25" x 42" Capacity
Handy Revolving Case, 78" & 83" Openings
Handy End & Frame, 5' & 6' jaws, open to 69" & 74"
Newman Sash & Door 4' x 7' Capacity
Lancaster Duncan Phyfe pedestal, air operated

### CLAMP CARRIERS
Billstrom 29-sec. 6 ft. 4-30-in clamps per section

### DOWEL MACHINERY
Bell No. 3 Dowel Pin Cutter & Pointer, m.d.
Bell No. 7 Auto Gluer & Dowel Driver, DMD

### FACERS (JOINTER-FEEDERS)
Porter-Herzog 24-in. direct motor drive
Porter 30" with Billstrom Feeder, DMD, B.B.

**Phone STate 2-7634**

### JOINTERS
American 16", Round Head, Ball Brg., D.M.D.
Diehl No. 60 cont. chain feed, direct motor dr., b.b.
Jenkins 3 CD cont. chain feed, direct motor dr., b.b.
Yates-Amer. 213 cont. chain feed, d.m.d., b.b.

### MORTISERS
Bell No. 80 Mult. Vert. Chain, D.M.D., B.B.
New Britain No. 2 chain, motor driven
Northfield Vert. Chain, Power feed, Mtr. Dr.
Wysong & Miles No. 321 Vert. Hollow Chisel, d.m.d.
Wysong & Miles No. 284 Vert. Hollow Chisel, D.M.D., Pwr. feed

### MOULDERS
Smith XL, 4 in., Ballbearing, Mtr. dr.
Vonnegut 8-in. All Electric B.B. with jointers
Vonnegut 12", All Electric, ballbearing
Yates C-3-A 4-in. 4-side ball brg., motor drive

### PLANERS
American 36 in. No. 666, Dbl. Cabt., D.M.D., B.B.
Buss 30-in. No. 4A sgl. cabt., direct motor drive
Buss 30 in. No. 4-L. Sgl. Cab. DMD, B.B.
Ekstrom-Carlson No. 18 Pneumatic Drum, DMD

### ROUTERS
Onsrud W244E & W240D Hi-Speed, B.B.

### SANDERS
Smith 43-in., 3-drum endless bed., dir. motor drive
Mattison No. 124, 6 ft. auto. stroke, motor drive
Newton E-18, Oscill. Edge Belt, DMD, MD
Nash No. 65, 4 spdl., Auto. Turning, DMD
Oakley Dbl. Belt, Hand Block, DMD
Production 14 in. horiz. belt, d.m.d., b.b.
Porter-Cable Oscill. Dbl. Spdl. D.M.D., B.B.
Pearson Edge Moulding, direct motor dr., b.b.
Wysong & Miles 309 disc and spdl., dir. motor drive
American 30-in. disc and drum, motor driven
American 24-in. disc and oscillating spindle
McKnight Vertical oscil. sgl. drum, motor drive
Superior No. 145 Db. end Cone, d.m.d., b.b.
Wysong & Miles No. 320 Endless Belt for drawers
Wysong Miles Universal Belt, DMD
Yates 43 in. 3-drum, endless bed, motor driven
Yates S4 Oscill. Edge Belt, D.M.D., B.B.

### SAWS—CUT-OFF
Tannewitz "M" Mitre and cut-off chop saw, dmd, bb
Jenkins No. 105 Chain Feed Dbl., with Copes, D.M.D., B.B.
Bell No. 12-B Double Mitre & Cut-off, DMD, M.D.
Porter C-43 Floor Type Straight Line, Ballbearing, direct motor driven

### SAWS—VARIETY
American No. 30 rip and trim, tilt-table, motor-drive

### SAWS—RIP
Beach No. 183 Spur feed, DMD, ballbearing
Marion "M" Chain Feed, Ballbearing, DMD
Mattison No. 207M Chain Feed, ballbearing, DMD
Yates G-2 Chain Feed, Ballbearing, D.M.D.

### SHAPERS
Moak No. 7 Single Spdl. Hi-speed, B.B. dir. M.D.
Onsrud W-123 Automatic, multiple stations
Oliver single spdl., hi-speed, ball-bearing, dr. m.d.
Porter double spdl., hi-speed, b. brg., dir. mtr. dr.

### SPREADERS—GLUE
Bell No. 13 Automatic Dovetail gluer, elec. heat

### TENONERS
Jenkins No. 95 Dbl. End, D.M.D., B.B. Trim Saws, Scoring Saws, Tenons, Copes, Jump Dado
Greenlee No. 532 Single end, fully equipt, b.b., dmd
Colladay Single end, fully equipped, mtd.-dr.
Smith Single End, fully equipped, motor drive

### VENEER MACHINERY
No. 69 cont. feed, Veneer Jointer, d.m.d., b.b.
Diehl veneer taping machine, motor driven
Dennis veneer taping machine, motor driven

### MISCELLANEOUS
Dodds 15 spdl. Dovetailer, spiral gears, motor drive
B.T. & B. 68" Automatic Knife Grinder, mtr. drive
Detroit Model B Power Screw Driver, D.M.D.
Cutterheads for Tenoners, Moulders, Shapers, all types.
Autonailer, Crusader Model, dir. motor dr., ball-brg.
Frequency Changers—5-10-50 K.W., 120 Cycle D.M.D. with Controls

ALL OFFERINGS SUBJECT TO PRIOR SALE

FADER WOODWORKING EQUIPMENT QUALITY

**A. L. FADER & COMPANY**

219 NORTH DESPLAINES STREET • CHICAGO 6, ILLINOIS

# Sutton GUARANTEED

## Best Buys in Woodworking Machinery

**We are exclusive representatives in the entire States of Virginia, North Carolina, South Carolina and Eastern Tennessee for the following firms: Baxter D. Whitney & Son, Inc.; S. A. Woods Machine Company; Mereen-Johnson Machine Company; The Oakley Company; Adamson United Company; Sheboygan Machine Company; Union Tool Corporation; Joyce Lumber Lifts; Redco Tool Grinders; W. B. Mershon Company.**

### CLAMPS

We make all sorts of air clamping machines on special order.

### DOVETAILERS

2—Dodds 12-Spdl. motor driven Dovetailers with Auto. Power Feed
Dodds 10-spindle Dovetailer

### GRINDERS

Dependable No. 101A Attachment for grinding side heads
Practically New Stetson-Ross No. 372 Grinder

### JOINTERS

Yates-American No. 213 Direct Motor Driven Glue Jointer
Yates-American 30", No. 1 Direct Motor Drive Jointer with Four Post Herzog Feeder

### MATCHERS

Yates-American A23 Elec. Hardwood Flooring Machine

### MORTISERS

Bell No. 80 Vert. Multiple, 6 spindle, hollow Chisel Mortiser
New Britain No. 2 Chain Mortiser
Wysong & Miles No. 286 Hinge Seat Mortiser

### MOULDERS

Practically New Dependable 10" Type M150 ball bearing motor driven moulder
Yates-American 10" C-89 Electric Moulder
Yates-American 9" C-55 Electric Moulder
Yates-American 9" No. 35 Electric Moulder
Yates-American 6" No. C-75 Electric Moulder
Newman 10" No. 412 Electric Moulder
Practically New Stetson-Ross 8" Type 48-K Fast Feed Electric Moulder, with Hopper Feed
2—Vonnegut 6" Electric Moulder, hopper feed
Vonnegut 10" Electric Moulder

### SINGLE PLANERS

Buss 30" Direct Motor Driven Ball Bearing Single Planer
Whitney 40" No. 29 direct motor driven ball bearing Single Planer

### DOUBLE PLANERS

1—Whitney 30" No. 24 Direct Motor Driven Ball Bearing Double Surfacer

### SANDERS

Two Motored Drawer Sander
Curtis Semi-Automatic Stroke Sander
Lancaster Drawer Sander
Mattison No. 124 Auto. Stroke Sander
Mattison No. 137 Belt Sander with Wysong & Miles semi-automatic stroke attachment
Yates-American 49", No. 433, Motor Driven, Ball Bearing, Endless Bed Sander

### SAWS

American 40" No. 1 Vertical Band Rip Saw
Crescent No. 10 direct motor driven ball bearing tilting table Variety Saw
Red Star Cut-off Saw similar to DeWalt
Eaglesfield Direct Motor Driven Ball Bearing Swing Saw
Wilkin-Challoner No. 620 Electric Panel Sizer with Copes
Greenlee, No. 542 Electric Panel Sizer, with copes

### SHAPERS

American No. 20 direct motor driven ball bearing double spindle Shaper
Onsrud No. 125 Automatic Shaper

### TENONERS

American No. 1 Single End Tenoner
Fay & Egan No. 505 electric single end tenoner
Greenlee, No. 542 Electric Panel Sizer, with copes
2—Jenkins No. 95 Electric Dbl. End Tenoners
Wilkin-Challoner No. 70 Electric Ball Bearing Double End Tenoner
Wilkin-Challoner No. 620 Electric Panel Sizer with Copes

### VENEER MACHINERY

Diehl No. 89 Veneer Splicer
197—Turnbuckle, retaining clamps, 36" long
140—I-Beams, 60" long
Dennis Model 3 Taping Machine
Francis 84x36" Hydraulic Veneer

### MISCELLANEOUS

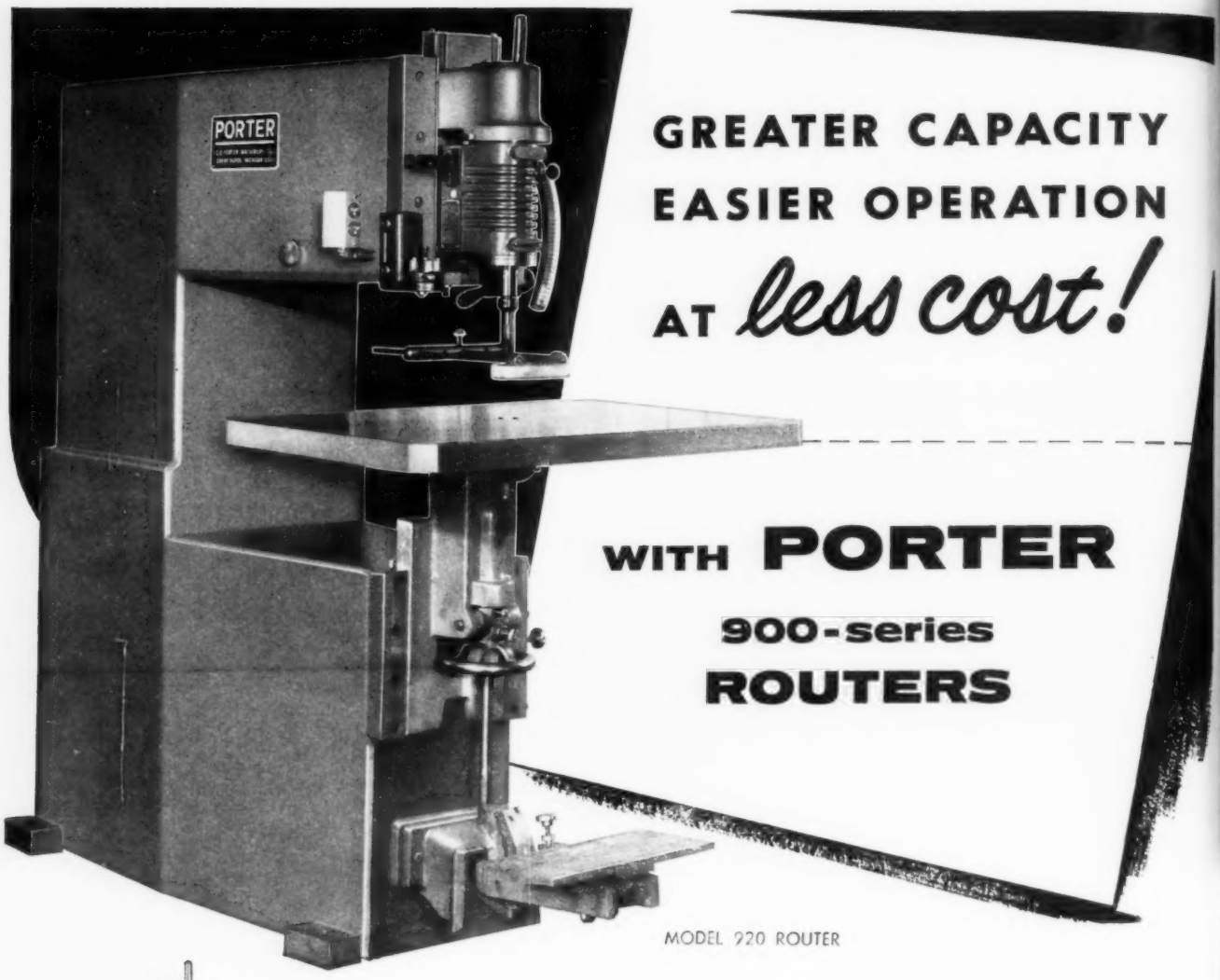
2-Motor driven V-Belt off-bearing Stock Saw Conveyors with air lift to rolls and indexed gauges with disappearing stops.
1—Rotary Air-Hydraulic 8' x 6' Platform Loading Platform Lift
Wardwell Saw Filer
Morgan 7-track Open Back Nailer with Clincher
Diehl No. 77 Waterfall Grooving Machine
Plycor continuous feed lumber edge gluing machine

# Sutton WOODWORKING MACHINE CO.

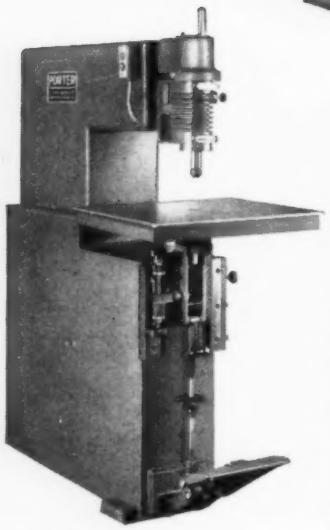
**PHONE BROADWAY 2-4186** **SEDGEFIELD INN** **GREENSBORO, N.C.**

# GREATER CAPACITY EASIER OPERATION AT *less cost!*

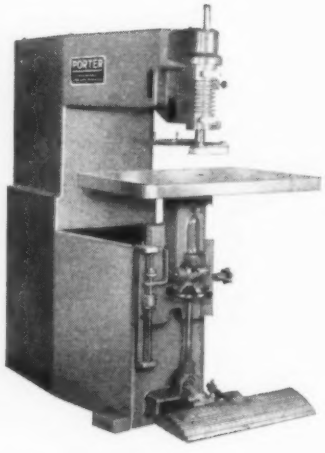
## WITH PORTER 900-series ROUTERS




MODEL 920 ROUTER




MODEL 900 ROUTER




MODEL 910 ROUTER

This new Porter line of DIVIDEND DESIGNED Routers has been designed to give you more machine for less money. Each of the 900 Series Routers has greater throat capacity (up to 6 inches more) than previous models. They feature cool-running, ultra-quiet heads that are virtually vibration-free. Pre-lubricated, sealed bearings eliminate oiling maintenance and permit cleaner operating conditions. On both the 910 and 920 models two-speed motors and blowers are furnished as standard equipment. And at prices considerably lower than the field has known, the Porter 900 Series Routers are today's best buy in the woodworking industry. If you're interested in getting better equipment at a lower cost, call in a Porter sales engineer today.

*Remember, **C. O.** is your guarantee of greatest **CO**operation*

**C. O. PORTER** MACHINERY COMPANY

522 Plymouth Road, N. E., Grand Rapids 5, Michigan

EXPORT DIVISION: John C. Jenson International, South Haven, Michigan, U. S. A.